Pioneer

Digital Control Amplifier

C-AX10

Operating Instructions

Congratulations on buying this fine Pioneer product. Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

[For Canadian model]

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

IMPORTANT NOTICE

The serial number for this equipment is located in the rear panel.
Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

ATTENTION: AFIN DE PREVENIR TOUS RISQUES DE CHOC ELECTRIQUE OU DE DEBUT D'ENCENDIE, NE PAS EXPOSER CET APPAREIL A L'HUMIDITE OU A LA PLUIE.

This product complies with the Low Voltage Directives (73/23/EEC) . EMC Directives (89/336/EEC, 92/31/EEC) and CE Marking Directive (93/68/EEC).

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

IMPORTANT

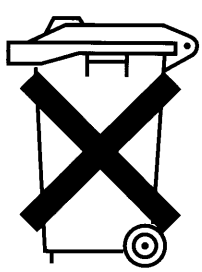
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Bij dit product zijn batterijen geleverd. Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.



IMPORTANT SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the product is operated.

RETAIN INSTRUCTIONS — The safety and operating instructions should be retained for future reference.

HEED WARNINGS — All warnings on the product and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

CLEANING — Unplug this product from the wall outlet before cleaning. The product should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

ATTACHMENTS — Do not use attachments not recommended by the product manufacturer as they may cause hazards.

WATER AND MOISTURE — Do not use this product near water — for example, near a bathtub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

ACCESSORIES — Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

CART — A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

VENTILATION — Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

POWER SOURCES — This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

LOCATION – The appliance should be installed in a stable location.

NONUSE PERIODS – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

GROUNDING OR POLARIZATION

- If this product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other), it will fit into the outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- If this product is equipped with a three-wire grounding type plug, a plug having a third (grounding) pin, it will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

OUTDOOR ANTENNA GROUNDING — If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.

LIGHTNING — For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

POWER LINES — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

OVERLOADING — Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

OBJECT AND LIQUID ENTRY — Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

SERVICING — Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

DAMAGE REQUIRING SERVICE — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance — this indicates a need for service.

REPLACEMENT PARTS — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

SAFETY CHECK — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

WALL OR CEILING MOUNTING — The product should not be mounted to a wall or ceiling.

HEAT — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

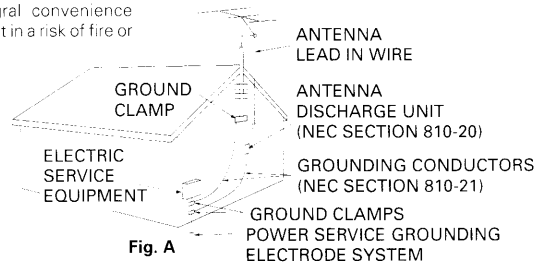


Fig. A

NEC — NATIONAL ELECTRICAL CODE

Information to User

Alteration or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

Features

❖ Digital control amplifier featuring six channel input/output for support of DVD-Audio

This high-performance multichannel digital control amplifier features six channel input/output for compatibility with the high-performance specifications and multichannel sound of DVD-Audio. Analogue signals are converted to digital signals, and then a DSP performs complete digital processing of these signals.

❖ Digital Dividing Network (➡p.22)

This amplifier is equipped with a high-end digital channel divider using four 192 kHz/48 bit DSPs.

This amplifier system allows you to choose between IIR and FIR filters and also features a time alignment function for correcting for the distance between the woofers and tweeters.

❖ DAC (Digital Accurate Control) volume

The volume control used in this amplifier sets the voltage-dividing ratio by changing the combinations of trimmed super high-precision resistors.

This system uses microcontrollers for accurate control so that there is virtually no level difference between different channels. Moreover, a sound with a superior signal-to-noise ratio can be obtained at the actual volume position in comparison to the slider-type controls in conventional systems. Also, the operating parts and circuitry in this amplifier system can be separated for eliminating signal interference by wire materials and other causes that can lead to impaired sound quality so that the shortest and optimal pattern layout can always be obtained.

❖ DSP for digital tone control (➡p.58)

The DSP in this amplifier system can control not only the front channels, but also the centre and rear channels. MID is incorporated in addition to BASS/TREBLE.

❖ Digital noise shaping

This function corrects for bit dropping resulting from tone control. This digital noise shaping function is compatible with a sampling frequency of 192 kHz. (two front channels only)

❖ Automatic Decoding of DTS (Digital Theater Systems)

This is the latest and most widely used digital theater system for cinemas throughout the world. A decoder has been incorporated into this amplifier and produces dynamic surround sound effects.

"DTS" and "DTS Digital Surround" are trademarks of Digital Theater Systems, Inc. Manufactured under license from Digital Theater Systems, Inc.

❖ Automatic Decoding of Dolby Digital and Dolby Pro Logic

No need to worry about program formats. When playing Dolby Digital or Dolby Surround software in the DD (Dolby) Surround mode, decoding switches automatically according to the input signal.

Manufactured under license from Dolby Laboratories. "Dolby", "AC-3", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. © 1992-1997 Dolby Laboratories. All rights reserved.

❖ Sound memory (➡p.55)

This amplifier systems allows you to store and recall up to 16 tone control setting patterns and 8 speaker setup patterns. With this function, you can make the desired sound setting for a setup pattern, assign any name to the pattern, and then display it as a sound setting option.

❖ 96 kHz/24 bit A/D converter

All six input channels use a high-performance 96 kHz/24 bit A/D converter.

For two-channel signals, you can select whether to use the A/D converted signal as a 96 kHz/24 bit signal or to use the DSP to drop down to a 48 kHz/24 bit signal for output from the digital output jacks.

❖ 192 kHz/24 bit D/A converter

All six output channels use a high-performance 192 kHz/24 bit D/A converter.

Since the front channels support channel-divider output, a total of eight D/A converters are incorporated in this amplifier system.

❖ Flexible A/D-D/A system (➡ p.76)

This flexible A/D-D/A system allows you to switch the configuration between two-channel stereo mode and multichannel mode for effectively using the six high-performance A/D converters and eight high-performance D/A converters. Multiple A/D and D/A converters are connected in parallel during two-channel stereo mode for delivering dramatically improved sound performance and quality.

❖ Digital phono equalizer (➡ p.45)

You can obtain a digital phono equalizer (RIAA) using DSP by simply switching the ANALOG 3 input from LINE input to PHONO input (MM only).

❖ Digital NR (noise reduction) (➡ p.61)

Digital NR reduces the noise in the music software for clear audio playback.

This function supports sampling frequencies up to 96 kHz and has three operating modes.

❖ Midnight Compression function (➡ p.61)

This audio system features a multichannel Midnight Compression function using DSP. With this function, the most subtle sounds become easier to hear even at a low playback volume.

❖ PDIF (Pioneer Digital Interface) (➡ p.47)

This is Pioneer's own custom digital interface. By connecting to the DVD-Audio-compatible player DV-AX10 (sold separately), a sampling frequency of 192 kHz and multichannel signals can be directly transmitted in their digital form. This eliminates the need for D/A-A/D conversion for delivering even higher quality sound playback.

❖ Multi-supply power transformer

The digital and analogue power supplies use separate transformers so that digital noise does not cause interference with the analogue circuitry.

This amplifier also has a fully-enclosed super-ring toroidal transformer for the parallel supply of clean, high-capacity power to the digital and analogue systems.

❖ Five-layered chassis

Four high-rigidity metal plates were secured to the chassis base to make a stable, five-layered base.

The mount supporting the heavy weight of the transformer includes two transformer stabilizers using thick copper-plated steel sheets to absorb the excess external and internal vibrations for producing a clear sound free from noise.

❖ Box-Within-a-Frame Design

The function blocks for the digital and analogue systems are blocked off using copper-plated steel sheets to prevent electrical interference from one block affecting another.

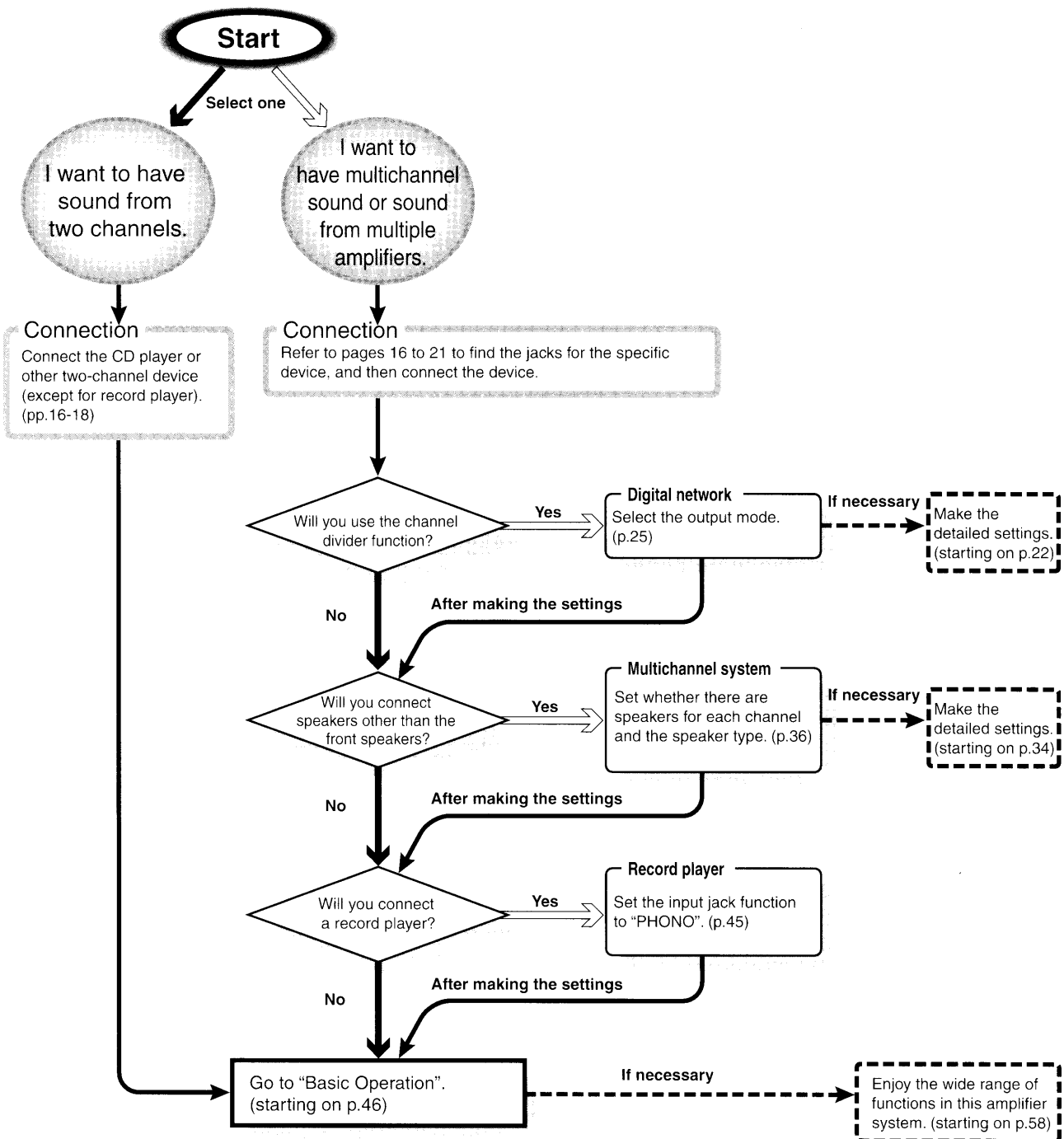
Also, two frames were installed at the front and back of the chassis for added strength to ensure that the chassis is not affected by external vibrations.

How to Use These Operating Instructions

These operating instructions are written according to the order that the operations are performed. The entire manual consists of 92 pages because of the large number of functions included in this amplifier system.

Before operation, be sure to read the section entitled safety precautions (➡p. 2)

After that, use the diagram below to proceed to the pages according to how you want to use the amplifier system.


Start
Select one
I want to have sound from two channels.
I want to have multichannel sound or sound from multiple amplifiers.
Connection
Connect the CD player or other two-channel device (except for record player). (pp.16-18)
Connection
Refer to pages 16 to 21 to find the jacks for the specific device, and then connect the device.
Will you use the channel divider function?
Yes
Digital network
Select the output mode. (p.25)
If necessary
Make the detailed settings. (starting on p.22)
No
After making the settings
Will you connect speakers other than the front speakers?
Yes
Multichannel system
Set whether there are speakers for each channel and the speaker type. (p.36)
If necessary
Make the detailed settings. (starting on p.34)
No
After making the settings
Will you connect a record player?
Yes
Record player
Set the input jack function to "PHONO". (p.45)
No
After making the settings
Go to "Basic Operation". (starting on p.46)
If necessary
Enjoy the wide range of functions in this amplifier system. (starting on p.58)

To find the specific pages, refer to "Contents" on page 7, "Table of Operations and Procedures" on page 8, "Names of Parts and Their Function" on pages 10 to 15, and the index on page 88.

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Table of Operations and Procedures

Desired Operation			Applicable Section	Page
Combining with other devices	I want to make a PDIF connection with the DV-AX10.	Connection	Digital Input/Output	16
		Usage	Digital Input (PDIF Connection)	47
	I want to connect the amplifier to the M-AX10 or other equipment and use the channel divider function.	Connection	Preout (Digital Network Mode)	19
		Usage	Digital Network	22
	I want to connect a record player.	Connection	Analogue Input/Output	17
		Usage	Selecting the ANALOG 3 Input Function	45
	I want to record the sound output from the digital output jacks of the amplifier.	Connection	Digital Input/Output	16
		Usage	Selecting the Digital REC OUT Signal	48
Speaker setup	I want to set whether there are speakers for each channel and the speaker type.		Speaker settings	36
	I want to position the speakers.		Setting the Distance to the Speakers	38
	I want to correct for the positions of the tweeters and woofers.	IIR	Setting the Time Alignment	29
		FIR	Setting the Time Alignment	33
	I want to change the connection polarity with the speaker unit.	IIR	Selecting the Phase	29
		FIR	Selecting the Phase	33
Adjusting the volume	I want to turn off the output temporarily.	Amplifier unit	Output Off	50
		Remote Control	Muting	50
	I want to adjust the high-range and low-range levels.	IIR	Adjusting the Level	29
		FIR	Adjusting the Level	33
	I want to adjust the balance between the front right and left speakers.		Adjusting the Right and Left Front Channel Balance	51
	I want to adjust the level of each channel.	Using a test tone	Adjusting the Level Using the Test Tone	40
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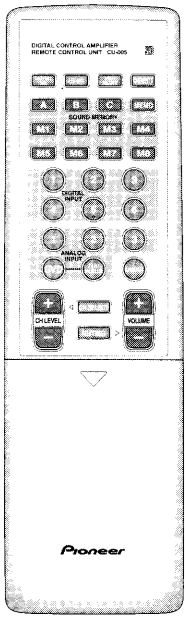
	I want to adjust the input sensitivity.		Adjusting the Input Gain (Input Sensitivity)	52
	I want to adjust the overall volume.		Adjusting the Volume	50
Sound Quality	I want to reduce the distortion in the subwoofer output.		Turning On and Off the Low-cut Filter	45
	I want to reduce the distortion generated from the LFE component.		Setting the LFE Attenuator	45
	I want to activate Legato Link Conversion.		Selecting the Digital Filter Mode	45
	I want to bypass the sound processing functions and hear the pure sound.		Direct Function	62
	I want to adjust the bass, mid-range, and treble characteristics.		Tone Control	58
	I want to reduce the noise contained in FM or cassette tapes.		Digital NR (Noise Reduction)	61
	I want to raise the resolution of the digital signal processing and expand the dynamic range.		Hi-bit Function	62
	I want to make the music easier to hear even at a low volume.		Midnight Function	61
Frequency characteristics	I want to change the point where the low and high ranges of the network filter intersect.	IIR	Setting the Crossover Frequency	28
		FIR	Setting the Crossover Frequency	32
	I want to change the attenuation characteristics of the network filter (IIR mode only).		Setting the Slope Characteristics	29
	I want to set the amplifer so that sounds of channels using small speakers which are below a certain Hz are output from other speakers.		Setting the Crossover Frequency (Multichannel)	44
	I want to use the digital network (channel divider function) to separate the low-range and high-range sounds of the front channels.		Selecting the Output Mode	25
User settings	I want to save the sound settings that I made and recall them when I need them.		Sound Memory	55
	I want to change the normal display options.		Selecting the Display Format of the Display	45
	I want to adjust the brightness of the display.		Adjusting the Brightness of the Display (DIMMER)	63
	I want to use a user-selected name for the displayed input name or sound memory name.		Character Input	66
Miscellaneous	I want to check the settings for the functions.		Checking Parameters	64
	I want to clear the settings and return them to the default settings.		Resetting All Settings	63

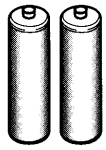
Before Operation

Checking the Accessories

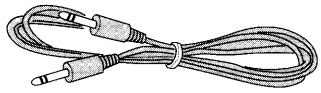
Remote control



Two AA batteries



PDIF connection cable (stereo mini-plug)

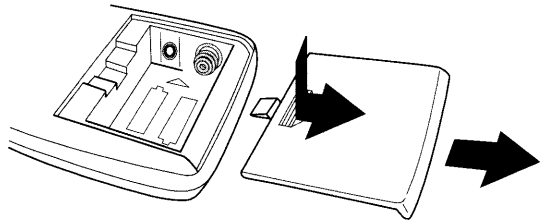


- Operating Instructions (this manual)
- Warranty

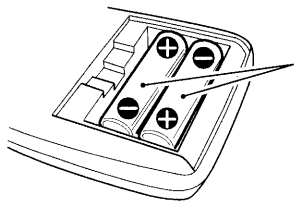
Preparing the Remote Control

Inserting the batteries into the remote control

1

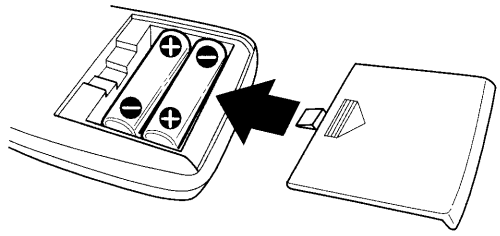


2



Two AA/R6P batteries

3



CAUTION

There is a danger that the batteries could leak or explode if they are not used properly. Be especially careful to follow the points below.

- Do not mix new batteries with old batteries in the remote control.
- Be sure to insert the positive and negative ends of the batteries in the directions indicated on the battery case.
- Some batteries have different voltages even though they have the same shape. Do not use different types of batteries in the remote control.
- To prevent battery leakage, remove the batteries from the remote control when not using for an extended period of time (more than one month). If battery leak occurs, thoroughly wipe up the liquid inside the case, and then insert new batteries.

memo

Replace the batteries when the operating range of the remote control becomes extremely narrow. (Replace both batteries with new AA/R6P batteries.)

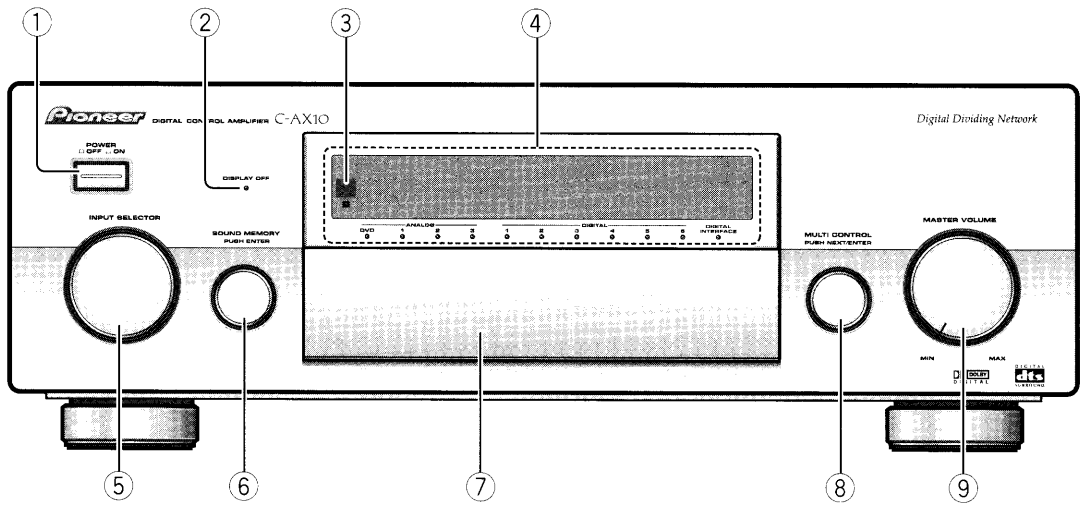
Installing the Amplifier

Ventilation

- When installing this amplifier, be sure to leave space around the unit for ventilation enough [at least 60 cm ($23^{5}/_{8}$ in) at the top, 10 cm ($3^{15}/_{16}$ in) at the rear, and 30 cm ($11^{13}/_{16}$ in) at each side]. If there is not enough space provided between the unit and walls or other equipment, heat will build up inside, interfering with performance or causing malfunctions.
- Do not place on a thick carpet, bed, sofa or fabric having a thick pile. Do not cover with fabric or other covering.
  Anything that blocks ventilation will cause the internal temperature to rise, which may lead to breakdown or fire hazard.

Names of Parts and Their Function

Front Panel



① **Power switch (POWER ■OFF/▂ON)**
Press the power switch to turn the amplifier on and off.

② **DISPLAY OFF indicator** (➡P.63)
This indicator turns on when the display is turned off by the Brightness Selection button (⑪).

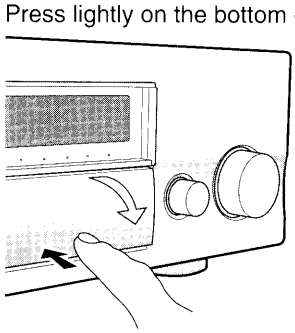
③ **Remote control sensor** (➡P.13)
Point the remote control towards this sensor when operating the amplifier.

④ **Display** (➡P.14)

⑤ **INPUT SELECTOR** (➡P.46)
This is used to select the input signal.

⑥ **SOUND MEMORY jog dial** (➡P.45, 55)
You can save and recall up to 16 tone control setting patterns and 8 speaker setup patterns and change the memory number display.

⑦ **Front flip-down door**
Press lightly on the bottom of this door to open it.



⑧ **MULTI CONTROL jog dial**
This jog dial is used to make various settings.
Turn the dial to select the setting, and then press to enter (ENTER/NEXT). Refer to the page of the specific function for more details.

⑨ **MASTER VOLUME knob** (➡P.50)
This knob is used to adjust the volume. Turning this knob adjusts the volume for all channels simultaneously.

⑩ **DD/DTS button** (➡P.53)
When this mode is selected, Dolby Digital, Dolby Pro Logic, or DTS Surround Mode is turned on automatically according to the input signal.

⑪ **Brightness Selection button (DIMMER)** (➡P.63)
The display brightness can be adjusted to four levels including Display Off.
When Display Off is selected, the Display Off indicator (②) turns on.

⑫ **DVD Input Selector button (DVD INPUT 2 ch/multi ch)** (➡P.46)
When DVD-A input is selected, this button is used to choose either two-channel input or multichannel (six channel) input.

⑬ **Sampling Frequency Selector button (fs 96k/48k)** (➡P.48)
When an analogue input signal is output from the digital output jack (DIGITAL OUT), this button is used to select whether the sampling frequency (fs) remains unmodified at 96 kHz or drops down to 48 kHz.

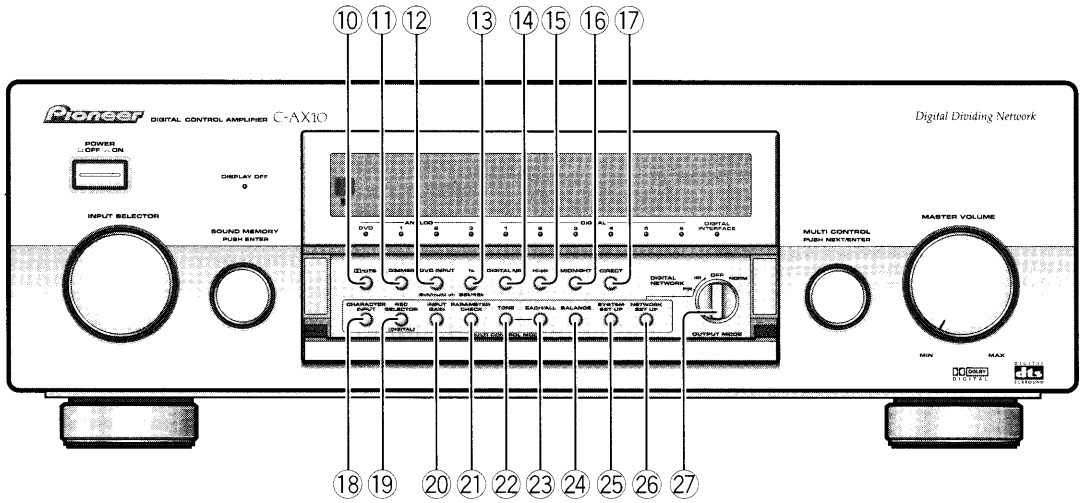
⑭ **DIGITAL NR button** (➡P.61)
This button is used to select the Digital NR function mode.

⑮ **Hi-bit button** (➡P.62)
This button is used to turn the Hi-bit function on and off.

⑯ **MIDNIGHT button** (➡P.61)
This button turns the Midnight function on and off.

⑰ **DIRECT button** (➡P.62)
This button is used to select the Direct function mode.

When the front flip-down door is opened



⑱ **CHARACTER INPUT button*** (➡P.66)
This button is used to enter the Character Input mode for changing the input signal or sound memory setting to a user-selected name.

⑲ **Digital REC Selector button (REC SELECTOR [DIGITAL])*** (➡P.48)
This button is used to enter the mode for selecting the REC OUT signal that is output from the digital output jack.

⑳ **INPUT GAIN button*** (➡P.52)
This button is used to enter the mode for adjusting the analogue input and digital input gain.

㉑ **PARAMETER CHECK button*** (➡P.64)
This button is used to enter the mode for checking the current settings.

㉒ **Tone Control button (TONE)*** (➡P.58)
This button is used to enter Tone Control mode.

㉓ **Tone Control Channel button (EACH/ALL)*** (➡P.58)
This button is used to switch between EACH mode and ALL mode.

- EACH mode : The front, centre, and surround channels can each be set individually.
- ALL mode : The front, centre, and surround channels are set to the same settings.

㉔ **Balance Control button (BALANCE)*** (➡P.51)
This button is used to enter the mode for adjusting the balance of the front left and right channels.

㉕ **SYSTEM SET UP button*** (➡P.34-45)
This button is used to enter System Setup mode for speaker setup or selecting modes.

㉖ **NETWORK SET UP button*** (➡P.22-33)
This button is used to enter Network Setup mode when the OUTPUT MODE selector (㉗) is set to Digital Network FIR mode or Digital Network IIR mode.

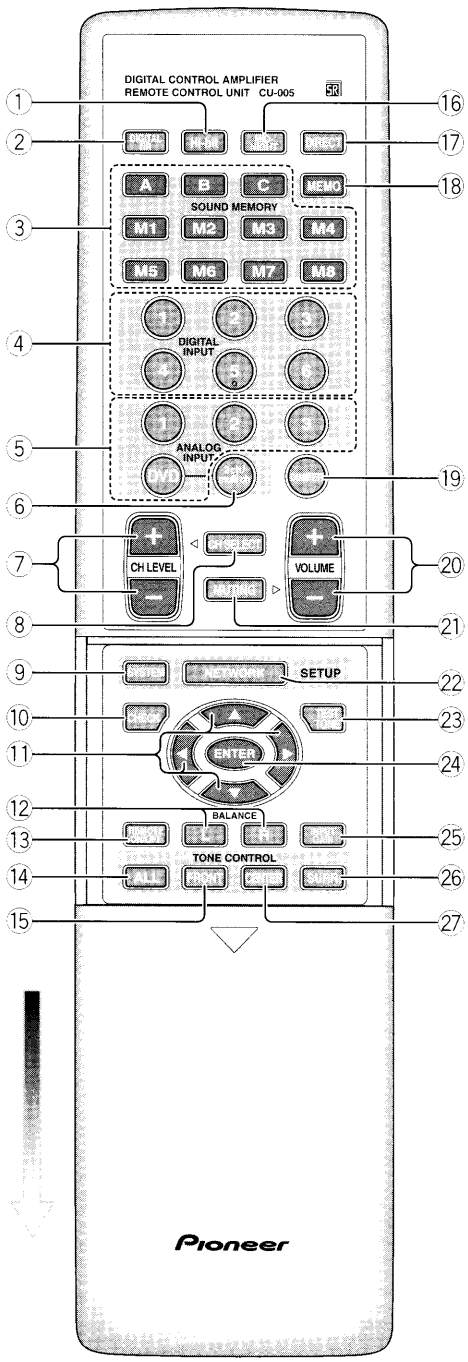
㉗ **OUTPUT MODE selector** (➡P.25)
This selector is used to set to one of the following four modes.

- Digital Network FIR mode
- Digital Network IIR mode
- Normal mode
- OFF (Output off)

memo

* After pressing the buttons in ⑱ to ㉖, use the MULTI CONTROL jog dial ⑧ to make the settings and adjustments.

Remote Control



This figure shows the remote control when the slide cover has been pulled down.
To open the slide cover, press on the ▽ mark on the cover and the indentation on the back of the remote control, and then pull the cover down slightly so that the lock releases with a clicking sound.

① **Hi-bit button** (➡P.62)
This button is used to turn the Hi-bit function on and off.

② **DIGITAL NR button** (➡P.61)
This button is used to select the Digital NR function mode.

③ **SOUND MEMORY buttons** (➡P.56)
These buttons are used to save and recall up to 16 tone control setting patterns and 8 speaker setup patterns. The three buttons A, B, and C can be selected within the eight buttons M1 to M8.

④ **Digital Input selector (DIGITAL INPUT 1 to 6)** (➡P.46)
These buttons are used to select the digital input signal.

⑤ **Analogue Input selector (ANALOG INPUT 1 to 3, DVD)** (➡P.46)
These buttons are used to select the analogue input signal.

⑥ **2ch/multi ch (DD/DTS) button** (➡P.46, 53)
When DVD-A input is selected, this button is used to select two-channel input, multichannel (six channel) input, or multichannel output after conversion of the two-channel signal to Dolby Pro Logic.
If an input other than DVD-A input is selected, OFF (2ch) and ON (multi) for Dolby Digital, Dolby Pro Logic, DTS, and Surround Mode are set according to the signal that is input.

⑦ **Channel Level buttons (CHANNEL LEVEL +, –)**

⑧ **Channel Select buttons (CH SELECT)** (➡P.43)
To adjust the channel level, use this button to choose the channel, and then use the CHANNEL LEVEL + and – buttons (⑦) to adjust the level.

⑨ **SYSTEM SET UP button** (➡P.34-45)
This button is used to enter System Setup mode for speaker setup or selecting modes.

⑩ **CHECK button** (➡P.64)
This button is used to enter the mode for checking the current settings.

⑪ **◄/►/▲/▼ buttons**
These buttons are used to make selections and settings.

⑫ **Balance Control buttons (BALANCE L, R)** (➡P.51)
These buttons are used to adjust the balance of the front left and right channels.

⑬ **REMOTE ON/OFF button**
This button is used to select whether the amplifier can receive operations from the remote control (ON) or not (OFF). Set to OFF when more than one Pioneer amplifier is operating at the same time. When set to OFF, the amplifier can be operated only from the amplifier unit.

⑭ **All Tone Control button (ALL)** (➡P.58)
This button is used to perform total tone control at the same settings for the front, centre, and surround channels.

⑮ **Front Tone Control button (FRONT)** (➡P.58)
This button is used to perform tone control for the front channels.

⑯ **MIDNIGHT button** (➡P.61)
This button turns the Midnight function on and off.

⑰ **DIRECT button** (➡P.62)
This button is used to select the Direct function mode.

⑱ **Memory button (MEMO)** (➡P.56)
This button is used when saving the sound memory settings.

⑲ **Brightness Selection button (DIMMER)** (➡P.63)
The display brightness can be adjusted to four levels including Display Off.

⑳ **Master Volume buttons (VOLUME +, –)** (➡P.50)
These buttons are used to adjust the volume.

㉑ **Muting button (MUTING)** (➡P.50)
This button is used to temporarily turn off the sound.

㉒ **NETWORK SET UP button** (➡P.22-33)
This button is used to enter Network Setup mode when the Output mode is set to Digital Network (IIR or FIR).

㉓ **TEST TONE button** (➡P.41)
This button is used to adjust the level using the test tone.

㉔ **ENTER button**
This button is used to enter selections and make settings.

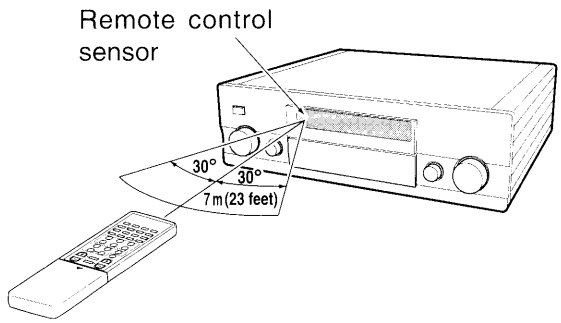
㉕ **INPUT GAIN button** (➡P.52)
This button is used to enter the mode for adjusting the analogue input and digital input gain.

㉖ **Surround Tone Control button (SURR.)** (➡P.58)
This button is used to perform tone control for the surround channels.

㉗ **Centre Tone Control button (CENTER)** (➡P.58)
This button is used to perform tone control for the centre channel.

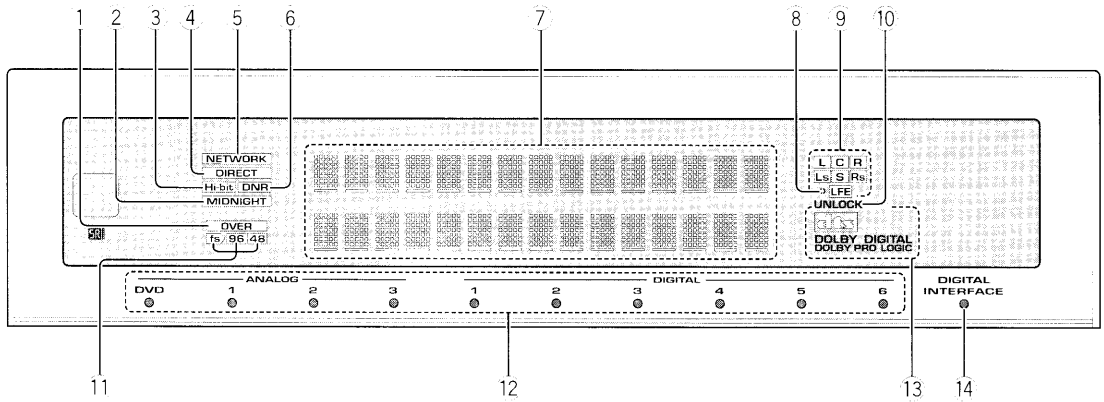
Operating Range of the Remote Control

When using the remote control to operate the amplifier, point the remote control towards the remote control sensor on the front panel.



- The remote control may not operate when there are objects between the remote control and amplifier or when the remote control is used at a wide angle from the sensor.
- The amplifier may malfunction if sunlight, fluorescent lights, or other strong lighting shines directly on the remote control sensor.
- The amplifier may malfunction if it is used near devices that emit infrared beams or when other remote control devices that use infrared beams are used. Conversely, this remote control can also cause other similar devices to malfunction when used in the same area.

Display



1 **OVER indicator** (➡P.50,52, 59)
This indicator turns on when the input level of the analogue signal is too high or when the signal level during the internal DSP operation is too high.
Adjust the input gain when this indicator turns on.

2 **MIDNIGHT indicator** (➡P.61)
This indicator turns on when the Midnight function is on.

3 **Hi-bit indicator** (➡P.62)
This indicator turns on when the Hi-bit function is on.

4 **DIRECT indicator** (➡P.62)
This indicator turns on when the Direct function is on.

5 **NETWORK indicator** (➡P.25)
This indicator turns on when the amplifier is set to Digital Network (Channel Divider) mode.

6 **DNR indicator** (➡P.61)
This indicator turns on when the digital NR function is on.

7 **Character display**
This display shows alphanumeric characters and symbols to convey various types of information.

8 **LFE indicator**
The LFE indicator turns on when LFEs (low frequency effect) are contained in the playback software. When LFE signals are actually played back (LFE signals do not exist in the entire sound track), the ● mark next to the LFE indicator turns on.

9 **Program Format indicator** (➡P.53)
The channel indicators corresponding to the input signals turn on when a PDIF connection is made or when a Dolby Digital or DTS signal is input.

L: Front left channel
C: Centre channel
R: Front right channel
LS: Surround left channel
S: Surround channel (monaural)
RS: Surround right channel
LFE: LFE signal

10 **UNLOCK indicator** (➡P.47)
This indicator turns on when the digital input signal is cut off.

11 **Sampling Frequency indicator** (➡P.48)
This indicator displays the sampling frequency (fs) of the digital REC OUT signal selected in the section "Selecting the Digital Output Sampling Frequency during Analogue Input".
96 : 96 kHz
48 : 48 kHz

12 **Input indicator** (➡P.46)
The indicator for the input signal selected by the INPUT SELECTOR turns on.

13 **DD Surround/DTS Mode indicator** (➡P.53)

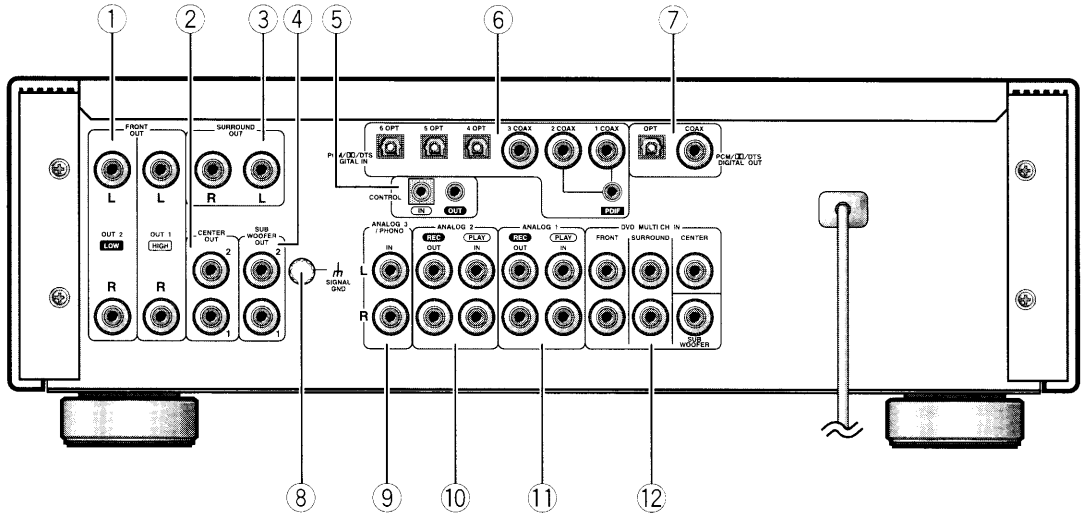
DTS: This indicator turns on when DTS signals are input while Dolby Surround/DTS mode is on.

DOLBY DIGITAL: This indicator turns on when playing back Dolby digital signals while Dolby Surround/DTS mode is on. However, DOLBY PRO LOGIC turns on when playing back Dolby Digital signals recorded in two channels.

DOLBY PRO LOGIC: This indicator turns on when playing back a two-channel source in DOLBY PRO LOGIC while Dolby Surround/DTS mode is on.

14 **DIGITAL INTERFACE indicator** (➡P.47)
This indicator turns on when using the INPUT SELECTOR to choose the input signals when a PDIF connection is made.

Rear Panel



1 **Front output jacks (FRONT OUT)** (➡P.18,19)
These are the front channel output jacks.
In Normal mode, OUT 1 and OUT 2 have the same output.
In Network mode, OUT 1 has high range (HIGH) output and OUT 2 has low range (LOW) output.

2 **Centre output jacks (CENTER OUT)** (➡P.18)
These are the centre channel output jacks during multichannel (six channel) output. Both 1 and 2 have the same output.

3 **Surround output jacks (SURROUND OUT)** (➡P.18)
These are the surround channel output jacks during multichannel (six channel) output.

4 **Subwoofer output jacks (SUB WOOFER OUT)** (➡P.18)
These are the subwoofer channel output jacks during multichannel (six channel) output. Both 1 and 2 have the same output.

5 **Control input/output jacks (CONTROL IN, OUT)** (➡P.20)
These jacks are used for controlling multiple Pioneer devices having the mark from the remote control sensor of a single device.

6 **Digital input jacks (PCM/DD/DTS DIGITAL IN)** (➡P.16)
Jacks 1 to 3 are for coaxial cables (COAX) and jacks 4 to 6 are for fiber-optic cables (OPT).
In a PDIF connection, the PDIF jack, 1 COAX jack and 2 COAX jack are used. For details, see page 47.

7 **Digital output jacks (PCM/DD/DTS DIGITAL OUT)** (➡P.16)
These output jacks are for a coaxial cable (COAX) and a fiber-optic cable (OPT).

8 **Signal ground terminal (SIGNAL GND)** (➡P.17)
Use this terminal when using an analogue record player or other device where a signal ground is required.
CAUTION
This terminal is provided to reduce noise. It is not a safety ground.

9 **ANALOG 3/PHONO input jacks** (➡P.45)
These jacks are used to select line input or phono input. See page 45 for the selection method.

10 **ANALOG 2 input/output jacks** (➡P.17)
These jacks are used for making analogue connections to recording or playback devices through the line input/output jacks.

11 **ANALOG 1 input/output jacks** (➡P.17)
These jacks are used for making analogue connections to recording or playback devices through the line input/output jacks.

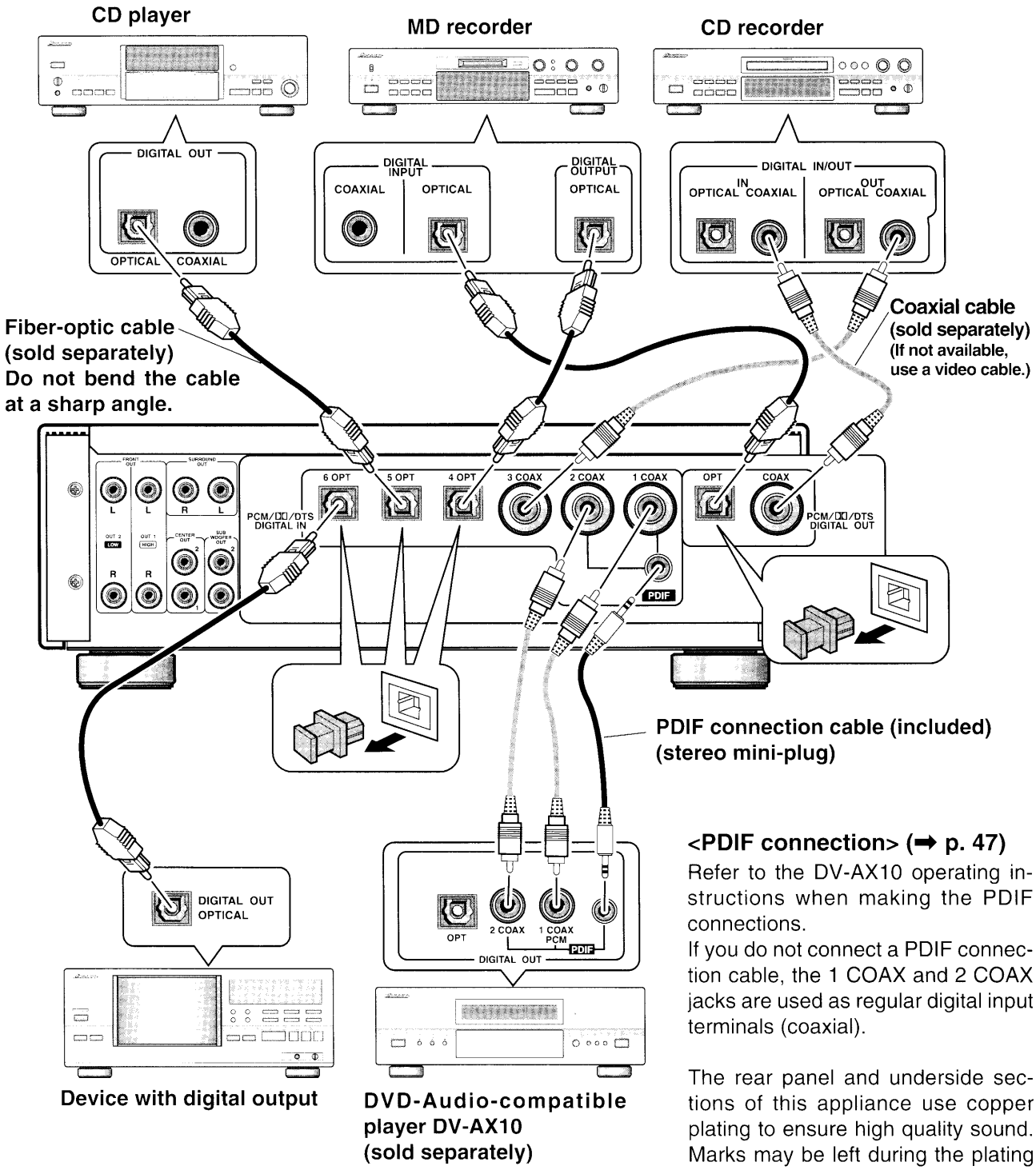
12 **DVD multichannel input jacks (DVD MULTI CH IN)** (➡P.17)
These jacks are used to connect to a DVD-Audio player having 6-channel output or a DVD player or other device having 5.1 channel output.

Connections

CAUTION

Before making any connections, be sure to first turn off the power switch, and unplug the amplifier from the outlet.

Digital Input/Output



<PDIF connection> (➡ p. 47)

Refer to the DV-AX10 operating instructions when making the PDIF connections.

If you do not connect a PDIF connection cable, the 1 COAX and 2 COAX jacks are used as regular digital input terminals (coaxial).

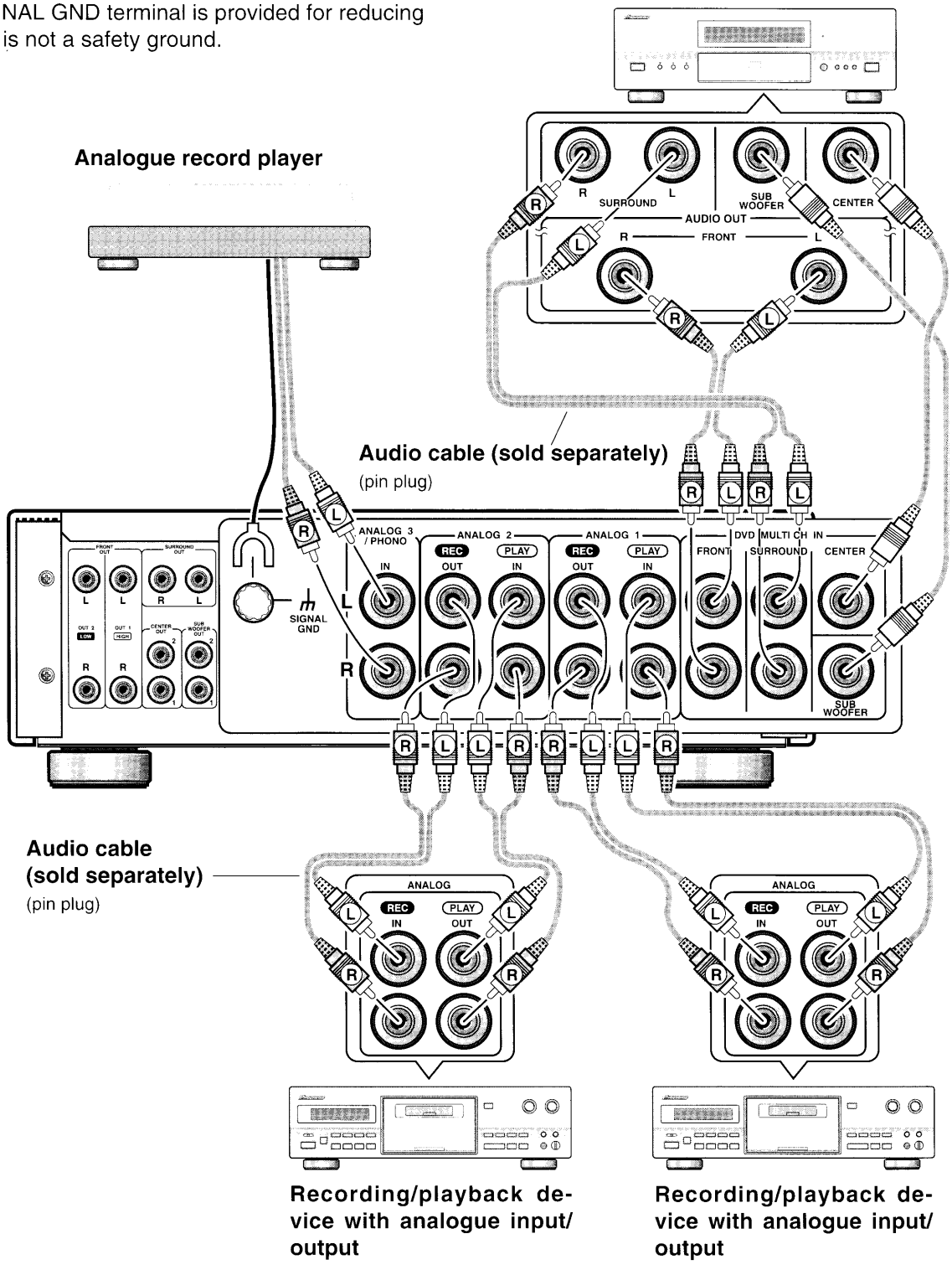
The rear panel and underside sections of this appliance use copper plating to ensure high quality sound. Marks may be left during the plating process in some cases, but this does not affect performance.

Analogue Input/Output

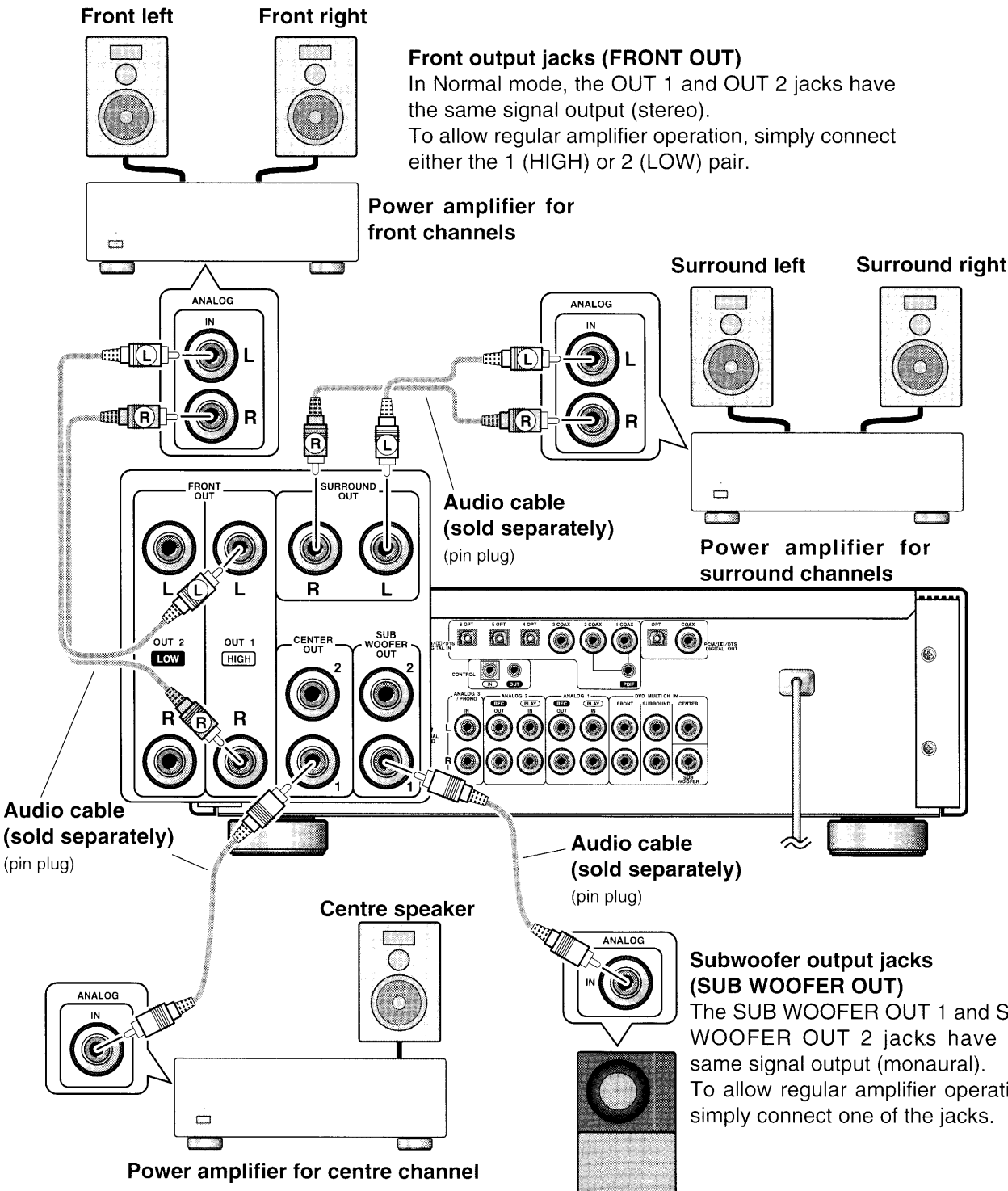
The input function needs to be selected in order to use the ANALOG 3/PHONO jacks for phono input. See page 45 for the selection method.

CAUTION:
The SIGNAL GND terminal is provided for reducing noise. It is not a safety ground.

DVD-Audio player having 6-channel output or a DVD player having 5.1 channel output [DV-AX10 (sold separately) and other equipment].



Preout (Normal Mode)


Front left
Front right
Front output jacks (FRONT OUT)
In Normal mode, the OUT 1 and OUT 2 jacks have the same signal output (stereo).
To allow regular amplifier operation, simply connect either the 1 (HIGH) or 2 (LOW) pair.
Power amplifier for front channels
Surround left
Surround right
ANALOG
IN
L
R
FRONT OUT
SURROUND OUT
Audio cable (sold separately)
(pin plug)
Power amplifier for surround channels
OUT 2
LOW
OUT 1
HIGH
CENTER OUT
SUB WOOFER OUT
Audio cable (sold separately)
(pin plug)
Audio cable (sold separately)
(pin plug)
Centre speaker
Power amplifier for centre channel
Subwoofer output jacks (SUB WOOFER OUT)
The SUB WOOFER OUT 1 and SUB WOOFER OUT 2 jacks have the same signal output (monaural).
To allow regular amplifier operation, simply connect one of the jacks.
Centre output jacks (CENTER OUT)
The CENTER OUT 1 and CENTER OUT 2 jacks have the same signal output (monaural).
To allow regular amplifier operation, simply connect one of the jacks.
Subwoofer with built-in amplifier

memo

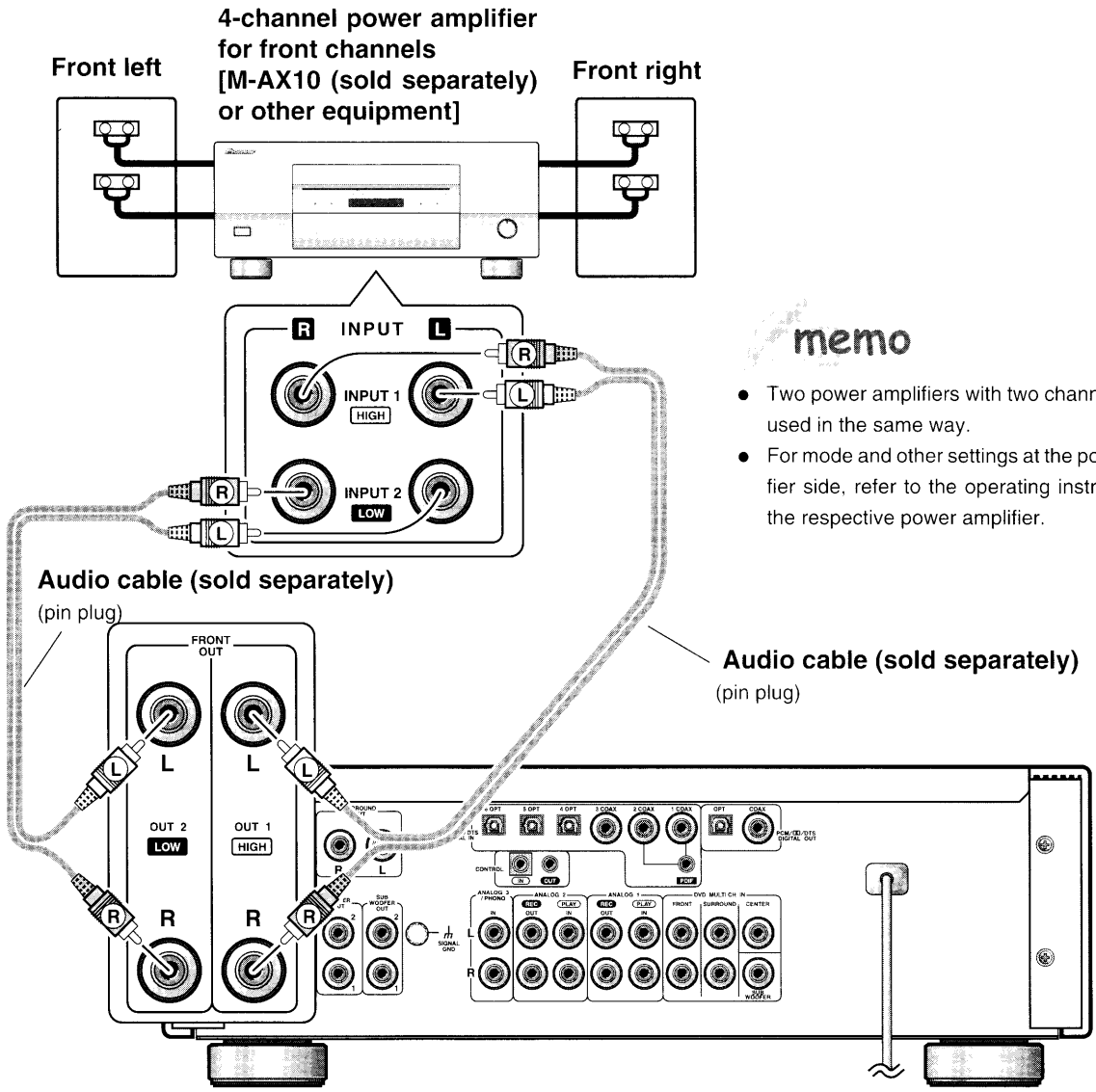
You can connect both jacks when using dual centre speakers.

memo

Connecting both jacks to a power amplifier when using two subwoofers allows you to recreate a sound venue with extra heavy bass and added impact.

Preout (Digital Network Mode)

For details about the digital network, see page 22.
Except for the front channels, the channel connections are the same as for Normal mode. See the page on the left.



memo

- Two power amplifiers with two channels can be used in the same way.
- For mode and other settings at the power amplifier side, refer to the operating instructions for the respective power amplifier.

CAUTION:
Make sure that the amplifier's low-range output (OUT 2 LOW) is connected to the woofer (low-range side), and the amplifier's high-range output (OUT 1 HIGH) is connected to the tweeter (high-range side).
The speakers may be damaged if you do not make these connections properly.

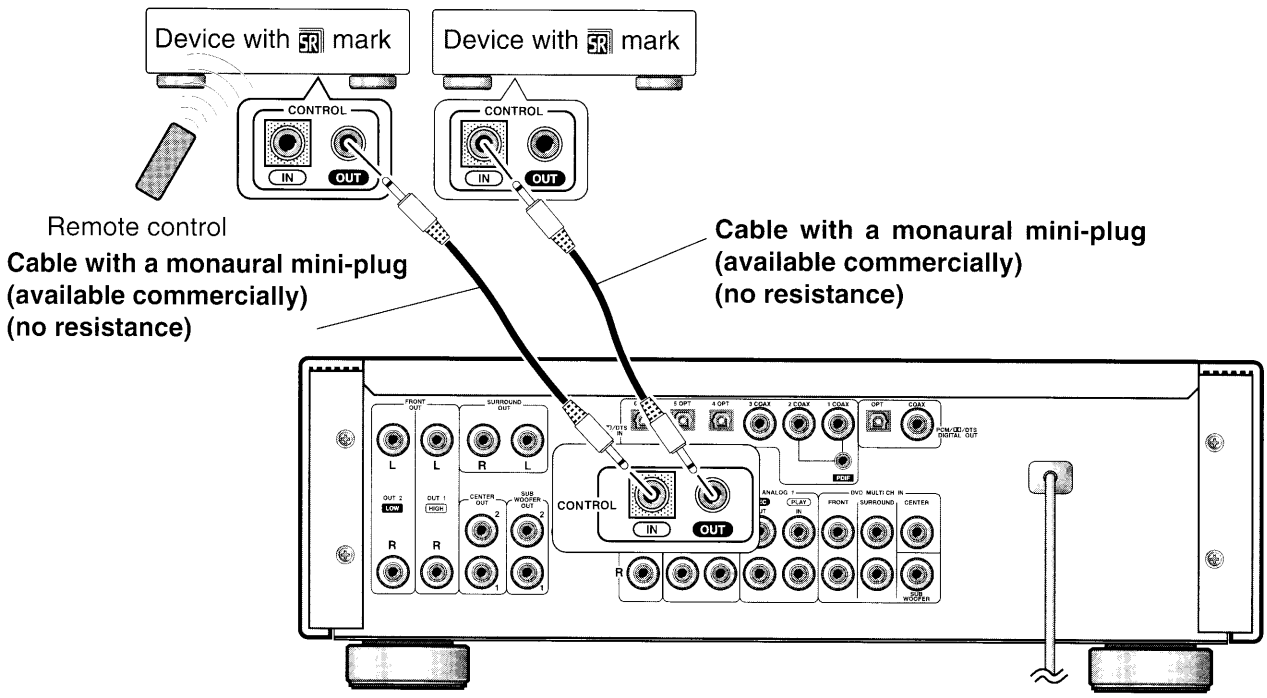
Control Input/Output and Power Cord

Control input/output jacks
(CONTROL IN, CONTROL OUT)
These jacks are used for controlling multiple Pioneer devices having the SR mark from the remote control sensor of a single device.

- Input (IN)
  Connect to a remote control output jack (CONTROL OUT) of a device having the SR mark.
- Output (OUT)
  Connect to a remote control input jack (CONTROL IN) of a device having the SR mark.

CAUTION:

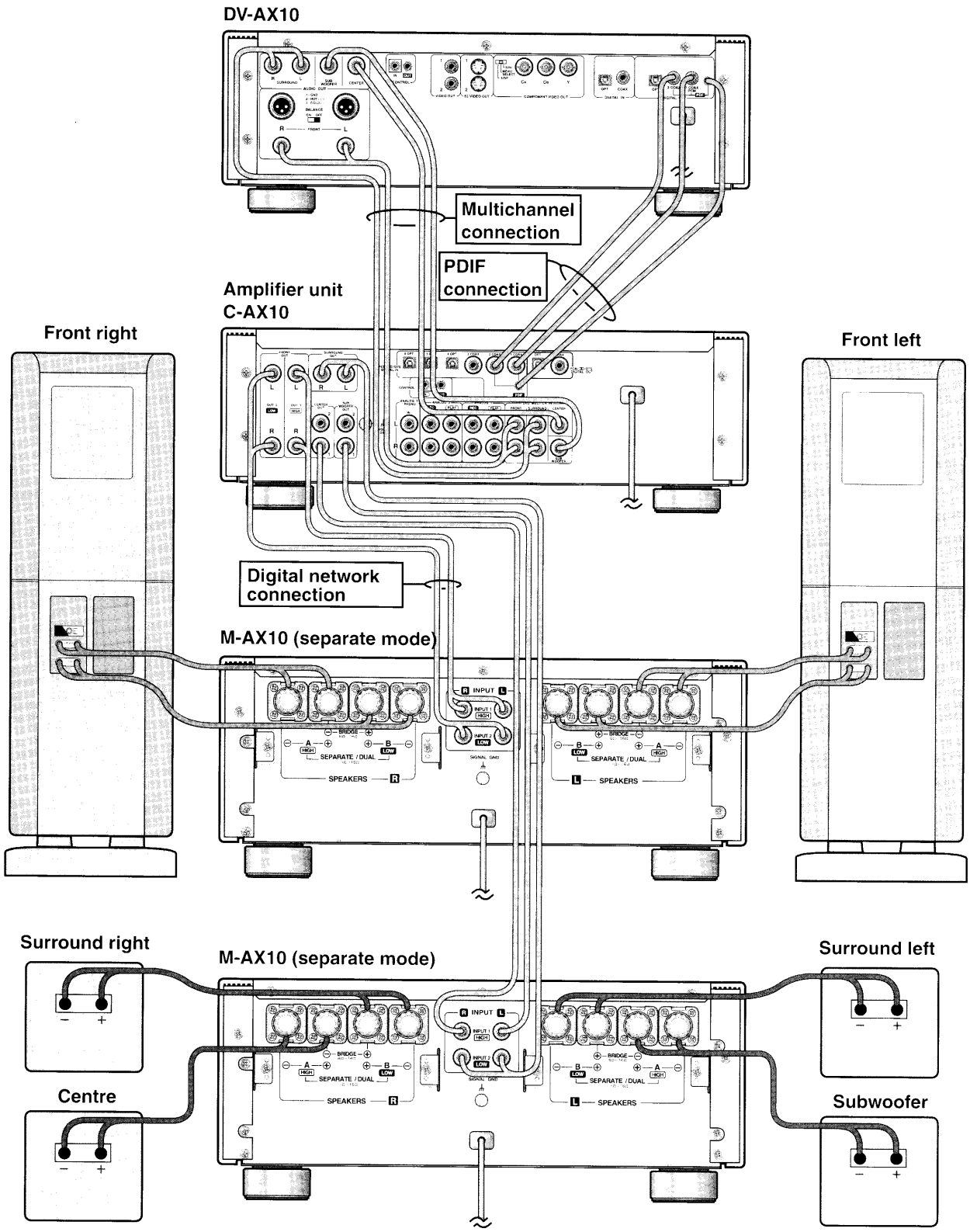
- The remote control sensor for the device that is plugged into the control input jack (CONTROL IN) does not function. The remote control operates only when pointed towards the remote control sensor for the device that is plugged into the control output jack (CONTROL OUT).
- Use cables with a monaural mini-plug (available commercially) (no resistance) to make the connections.
- Whenever making the control jack connections, be sure to also connect the analogue input and output jacks. System control does not function correctly when only the digital input and output connections are made.



Once all the connections have been made, plug the amplifier unit into the household AC outlet.

Example of AX Series Connections (PDIF Connections and Digital Network Connections)

An example of the connections when the amplifier is combined with AX series equipment (sold separately) is shown below. Be sure to refer to the respective operating instructions when connecting the equipment.



Digital Network

Digital Network Mode (Channel Divider)

What is a digital network (channel divider)?

Two-way, three-way, and other multi-way speaker systems require a network that divides the signals into frequency ranges according to the speaker unit (woofer, tweeter, and other speakers). This network is made of coils, capacitors, and other passive components, and typically is already incorporated into the speaker system (=speaker network). On the other hand, the operation for dividing the frequency ranges is identical to a speaker network, but each speaker unit is driven by its own dedicated power amplifier. The network that comes before the power amplifier is called a channel divider.

In contrast to a speaker network, a channel divider delivers clear, high-quality playback since there is no interference between the different frequency ranges. Moreover, because the channel divider is connected directly to the power amplifier, the sounds have a more vivid and distinct quality. Also, the crossover frequencies and volume for each speaker unit can be adjusted so that you can easily obtain the desired sound effects.

In this amplifier, the channel divider uses digital signal processing to perform calculations at a maximum sampling frequency of 192 kHz and maximum bit length of 48 bits (= digital network). This allows the amplifier system to incorporate special, high-precision filters and time correction functions to bring out the maximum performance for your speaker system*.

* The speaker systems need to have jacks for connecting directly to the speaker unit without passing through the network.

Filter Features

This amplifier is provided with two types of filters for dividing the sound ranges.

■ IIR (Infinite Impulse Response)

Like conventional analogue filters, this filter rotates the phase according to the attenuation characteristics. The digital technology incorporated in this amplifier allows an expanded range of options for crossover frequencies and attenuation characteristics and allows the attainment of sharp characteristics unable to be achieved with conventional analogue technology.

■ FIR (Finite Impulse Response)

This filter has no phase rotation regardless of the attenuation characteristics (= linear phase characteristics) to obtain ideal speaker crossover by adjusting delay time periods only. This filter has four types of crossover frequencies. The attenuation characteristics are fixed at roughly –36 dB/oct for low range and –12 dB/oct for high range.

Note that some functions may not operate depending on the filter type.

For more information about these component combinations, see the respective function description or the Table of Function Combinations (➡p.68).

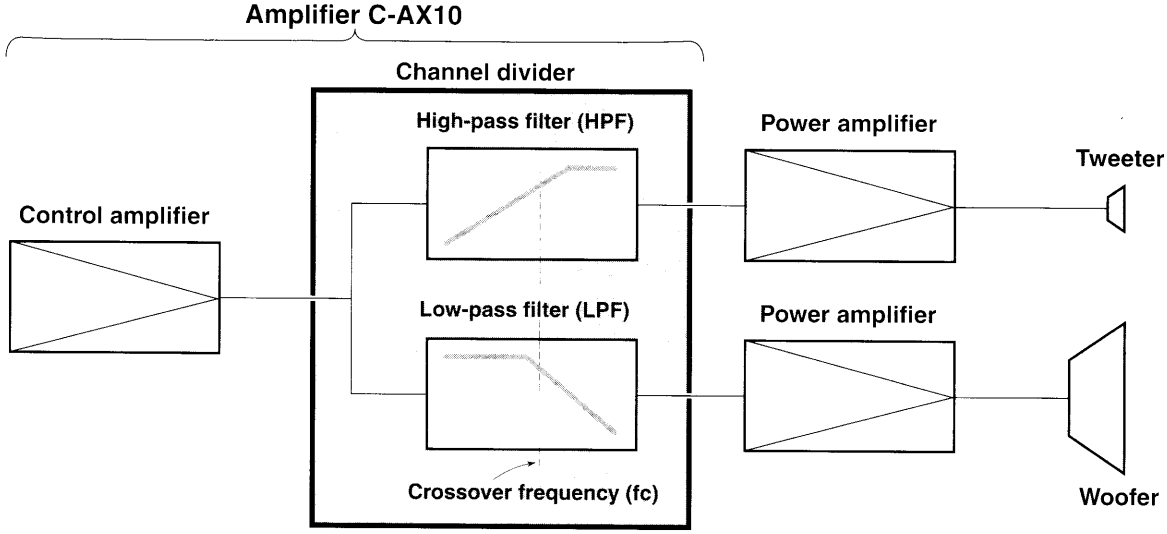


Fig. 1 Example of System Using a Channel Divider

Setting Options

This section describes the available setting options for obtaining the desired sound quality. For the specific options and values, see the first page of the respective filter setting.

■ Crossover Frequency

As shown in Fig. 1, the crossover frequency is the point where the attenuation curves of the high-pass filter (HPF) and low-pass filter (LPF) intersect. In this amplifier, the IIR filter is set to the frequency where the curves intersect at –3 dB, and the FIR filter is set to the frequency where the curves intersect at –6 dB (when the high-range and low-range crossover frequencies are set to the same value in IIR) (Fig. 2).

Although the crossover frequency generally depends on the diameter of the woofer and the allowable input for the tweeter, to prevent damage to the speakers, refer to the specifications (allowable input) for the tweeter, and do not set the frequency too low.

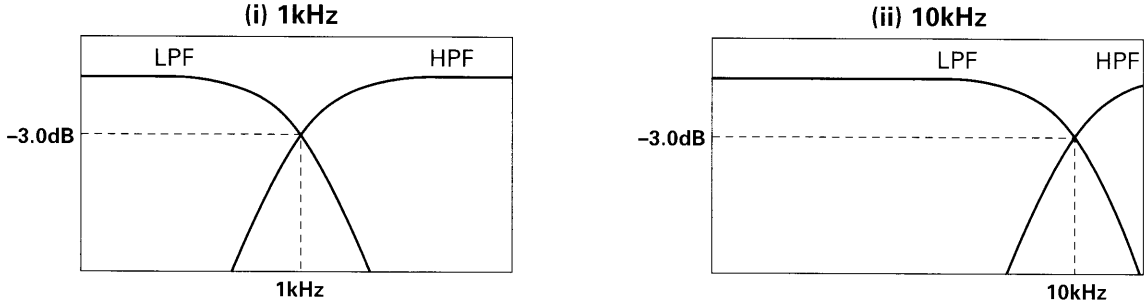


Fig. 2 Crossover Frequency Characteristics (when the low-range and high-range values are set to the same value in IIR)

■ Slope Characteristics

The slope of the filter attenuation characteristics is shown below. In the FIR filter, the slope is fixed, whereas in the IIR filter, seven types of slope characteristics ranging from 0 dB/oct to –96 dB/oct can be selected. For example, a setting of –12 dB/oct in the low-pass filter (LPF) means that the signal level attenuates to –12 dB (one-fourth) when the frequency is doubled. The larger the value, the sharper that the area outside the range is attenuated (Fig. 3). As the signal level approaches 0 dB/oct, the phase rotation is small, but the amount of attenuation is also small. Therefore, a large number of low-range signals enter the tweeter, resulting in a drop in filtering input performance, and the overlapping area of sound pressure for the woofer and tweeter becomes large. As a result, it is necessary to be particularly careful when selecting the speakers that are to be used. On the other hand, as the signal level approaches –96 dB/oct, the phase rotation is large, but the overlapping area is small. Therefore, it is easy to adjust the sound pressure characteristics. One of the pleasures of audiophiles is listening to music at different audio settings within the allowable input range of the speaker units.

(See pages 78 and 79.)

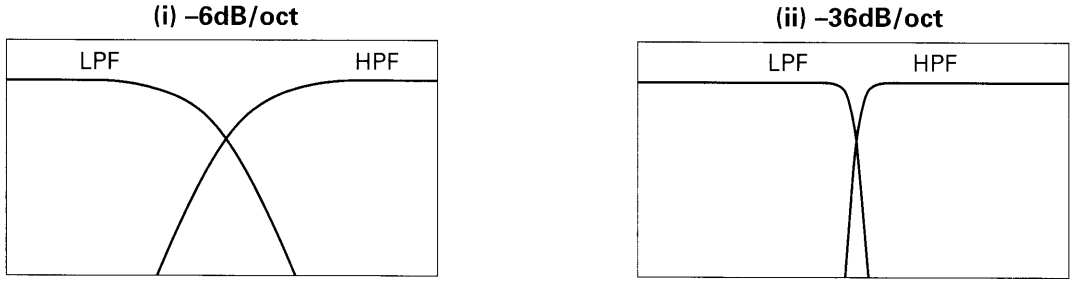


Fig. 3 Slope Characteristics (–6 dB/oct, –36 dB/oct)

■ Level

In any speaker system, it is important to obtain the right balance between the volume of low-range and high-range sounds. Since tweeters are generally more efficient than woofers, the default settings for the amplifier are 0 dB for the low range and –20 dB for the high range. For example, when listening to a programme with an output sound pressure level of 90 dB at the woofer and 110 dB at the tweeter, first set the low-range level to 0 dB and then set the high-range level to (90 –110=) –20 dB, and then make fine adjustments according to the auditory sensation.

■ Time Alignment

For a horn-shaped tweeter and cone-shaped woofer in a two-way speaker system, the sound emitted from the horn-shaped tweeter reaches the ears after the sound from the cone-shaped woofer by a small amount, and as a general rule, the tweeters and woofers need to be aligned for the faithful playback of input signals. However, even if you do not actually move the positions of the speakers, you can in effect adjust the position by controlling the timing at which the signals are output. Correcting the equivalent time in this way so that the sound is heard as if it was generated from the same distance is called time alignment.
In this amplifier, the delay time is entered for the high-range signal based on the low-range signal. The delay time can be found by dividing the distance by the speed of sound (340 m/sec or 1115 feet/sec).

$$\text{Time[sec]} = \frac{\text{Distance [m]}}{\text{Speed of sound 340 [m/sec]}}$$

Time [ms]	0	····	0.30	····	1.00	····	2.00	····	3.00	····	8.00
Distance [cm]	0	····	10.20	····	34.00	····	68.00	····	102.00	····	272.00

0.01 [ms] = **0.34** [cm] Step

0.2 [ms] = **6.8** [cm] Step

$$\text{Time[sec]} = \frac{\text{Distance [feet]}}{\text{Speed of sound 1115 [feet/sec]}}$$

Time [ms]	0	····	0.30	····	1.00	····	2.00	····	3.00	····	8.00
Distance [in.]	0	····	4.01	····	13.40	····	26.80	····	40.10	····	107.20

0.01 [ms] = **0.134** [in.] Step

0.2 [ms] = **2.68** [in.] Step

When measuring the distance for the speaker positions, cone-shaped speakers should be measured from the deepest position of the diaphragm, dome-shaped speakers should be measured from the dome ridge, and horn-shaped speakers should be measured from the tip of the diaphragm. After changing the speaker positions based on these calculated values, it is recommended that you make fine adjustments by correcting according to your feel for the sound. Moving the tweeter forward (FWD direction) produces a vivid, clear-cut sound, while moving the tweeter back (BACK direction) produces a more relaxed, loose sound.

■ Phase

In some speakers, the polarity may be reversed from the start. Also, when using an IIR filter, the phase may be modified by the slope characteristics. Due to these occurrences, the sound may flow more smoothly when the connection polarity of the woofer and tweeter is reversed. As a result, this amplifier is provided with a function for reversing the phase (180°) of the high-range side. It is recommended that you listen and compare the sound when the phase is reversed and when it is not, especially when you do not know the polarity.

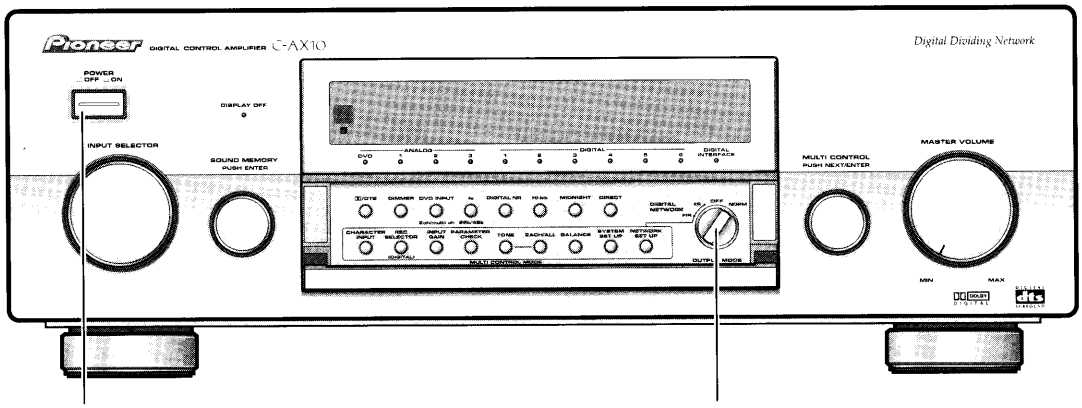
Also, select "FWD" to place the tweeter further forward than the woofer, and select "BACK" to place the tweeter further behind. For example, selecting "FWD 0.30 ms" is the same as moving the tweeter 10 cm (4 in.) forward from its current position.

Operation and Setting Precautions

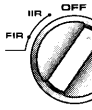
Turn the volume to low whenever checking the speakers while making the settings. In particular, the speakers may be damaged if you try to play back signals containing low-range signals in a tweeter at a high volume. When combining this amplifier in a system with a power amplifier having a volume control, first lower the volume for the power amplifier. It is important to be careful when making connection and the crossover frequency settings.

Selecting the Output Mode

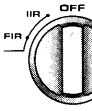
When using a digital network, the front channel output must be changed from Normal mode (full-range output) to Digital Network mode (channel divider output).
See page 19 for the connections.



1, 3 2



NORM :
Normal mode
(full-range output)



OFF :
Output off

IIR :
Digital network
IIR* mode
(High-range/low-range separation output)

FIR :
Digital network
FIR* mode
(High-range/low-range separation output)

✻ See pages 22 to 24 for the characteristics of each filter.

NETWORK Indicator

1. Turn off the power switch.

If you switch between modes without setting to OFF while the power is on, the output mode display flashes and sounds are no longer output. The amplifier returns to the normal state when you return it to the original mode.
(See page 50 for more information about OFF.)

2. Use the OUTPUT MODE selector to choose the output mode.

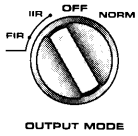
3. Turn on the power switch.

- The NETWORK indicator turns on in the IIR and FIR modes.
- When you change the modes, the MASTER VOLUME is automatically set to the minimum setting.
- When you set to IIR or FIR, the filter setting mode is automatically activated.(IIR➡ p.26, FIR ➡ p.30)
- When you set to FIR mode, the Direct function is automatically turned on, and the Digital NR, Midnight, and Tone Control functions are bypassed.

CAUTION

- **Be careful that you do not set to Normal mode while the digital network mode connections are still made (when the speaker network is disconnected). This could damage the speakers.**
- **If you making the wrong connections for the tweeter or woofer, you can damage the speakers. Be sure to carefully check the connections before making the settings.**

Setting the IIR Filter



Check that the output mode is set to "IIR". If it is not set to "IIR", use the procedure on page 25 to make the setting.

Setting options

See pages 22 to 24 for the meanings of the setting options.

Crossover frequency settings (>fc(Hz)) (➡ p.28)

The low-range and high-range crossover frequencies can be set individually. The following setting options are available.

70 Hz	100 Hz	130 Hz	180 Hz	250 Hz	290 Hz	300
Hz		350 Hz	500 Hz	650 Hz	800 Hz	950
Hz	1.0 kHz	1.2 kHz		1.8 kHz	2.5 kHz	3.5
kHz	5.0 kHz	7.0 kHz	8.0 kHz	10.0 kHz	12.5 kHz	16.0
kHz	20.0 kHz 24.0 kHz					

Slope characteristic settings (>SLOPE(dB/oct)) (➡ p.29)

The low-range and high-range slope characteristics can be set individually. The following setting options are available.

0 dB/oct, –6 dB/oct, –12 dB/oct, –18 dB/oct, –24 dB/oct, –36 dB/oct, –96 dB/oct

Level adjustment (>LEVEL(dB)) (➡ p.29)

This is used to adjust the low-range and high-range levels.
The level can be adjusted in 0.1-dB steps from 0 to –25 dB.

Time alignment settings (>TIME ALIGNMENT) (➡ p.29)

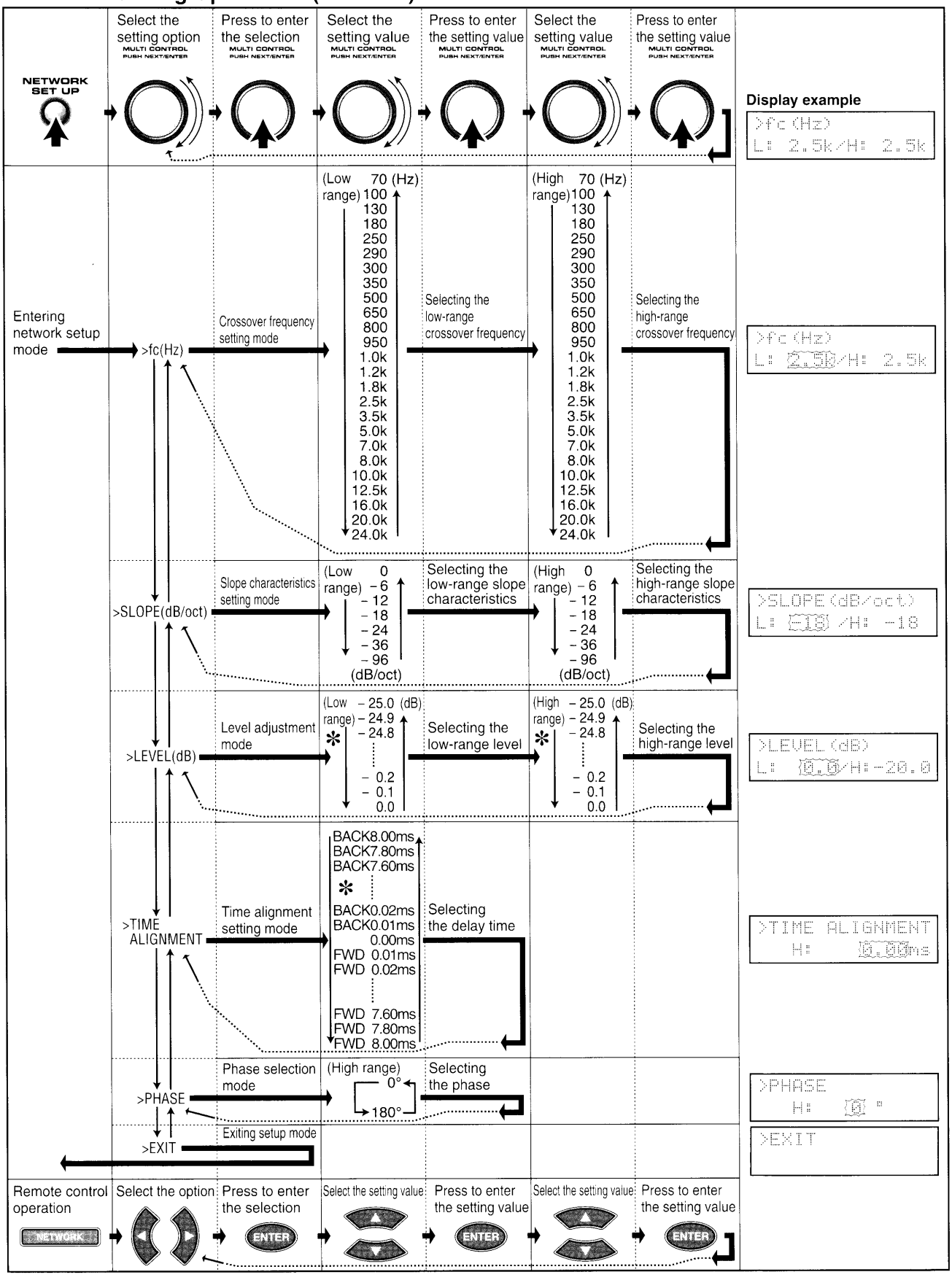
This allows you to set the delay time for the tweeter based on the woofer.
This setting can be made in 0.01-ms steps from 0 ms to 2.00 ms backward (BACK) and 0 ms to 2.00 ms forward (FWD) and in 0.2-ms steps from 2.00 ms to 8.00 ms backward (BACK) and 2.00 ms to 8.00 ms forward (FWD).

Phase selection (>PHASE) (➡ p.29)

The tweeter phase can be set to normal phase (0°) or reverse phase (180°) based on the woofer.

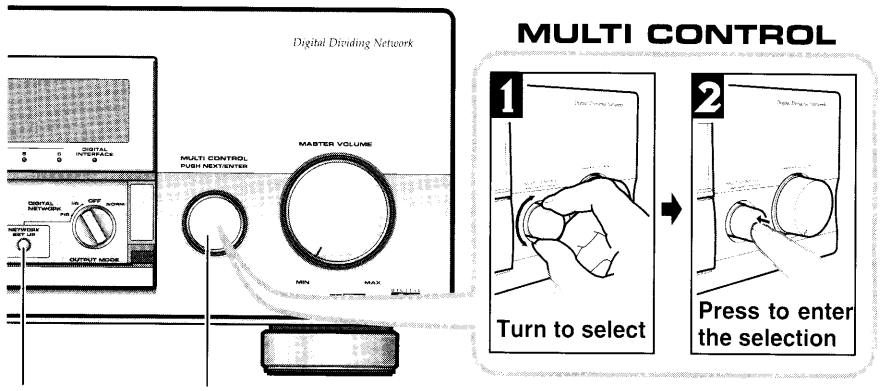
Refer to the table at the right and pages 28 and 29 to perform the settings.

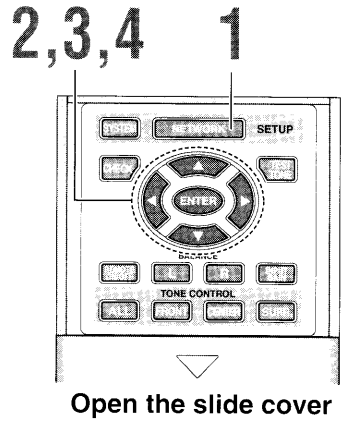
■ Table of Setting Operations (IIR Mode)


Select the setting option
Press to enter the selection
Select the setting value
Press to enter the setting value
Select the setting value
Press to enter the setting value
MULTI CONTROL PUSH NEXT/ENTER
NETWORK SET UP
Display example
>fc(Hz)
L: 2.5k/H: 2.5k
Entering network setup mode
>fc(Hz)
Crossover frequency setting mode
(Low range) 70 (Hz) 100 130 180 250 290 300 350 500 650 800 950 1.0k 1.2k 1.8k 2.5k 3.5k 5.0k 7.0k 8.0k 10.0k 12.5k 16.0k 20.0k 24.0k
Selecting the low-range crossover frequency
(High range) 70 (Hz) 100 130 180 250 290 300 350 500 650 800 950 1.0k 1.2k 1.8k 2.5k 3.5k 5.0k 7.0k 8.0k 10.0k 12.5k 16.0k 20.0k 24.0k
Selecting the high-range crossover frequency
>SLOPE(dB/oct)
Slope characteristics setting mode
(Low range) 0 -6 -12 -18 -24 -36 -96 (dB/oct)
Selecting the low-range slope characteristics
(High range) 0 -6 -12 -18 -24 -36 -96 (dB/oct)
Selecting the high-range slope characteristics
>SLOPE(dB/oct)
L: -18 /H: -18
>LEVEL(dB)
Level adjustment mode
(Low range) -25.0 (dB) -24.9 -24.8 ... -0.2 -0.1 0.0
Selecting the low-range level
(High range) -25.0 (dB) -24.9 -24.8 ... -0.2 -0.1 0.0
Selecting the high-range level
>LEVEL(dB)
L: 0.0/H:-20.0
>TIME ALIGNMENT
Time alignment setting mode
BACK8.00ms BACK7.80ms BACK7.60ms ... BACK0.02ms BACK0.01ms 0.00ms FWD 0.01ms FWD 0.02ms ... FWD 7.60ms FWD 7.80ms FWD 8.00ms
Selecting the delay time
>TIME ALIGNMENT
H: 0.00ms
>PHASE
Phase selection mode
(High range) 0° 180°
Selecting the phase
>PHASE
H: 0 °
>EXIT
Exiting setup mode
>EXIT
Remote control operation
Select the option
Press to enter the selection
Select the setting value
Press to enter the setting value
Select the setting value
Press to enter the setting value
NETWORK
ENTER

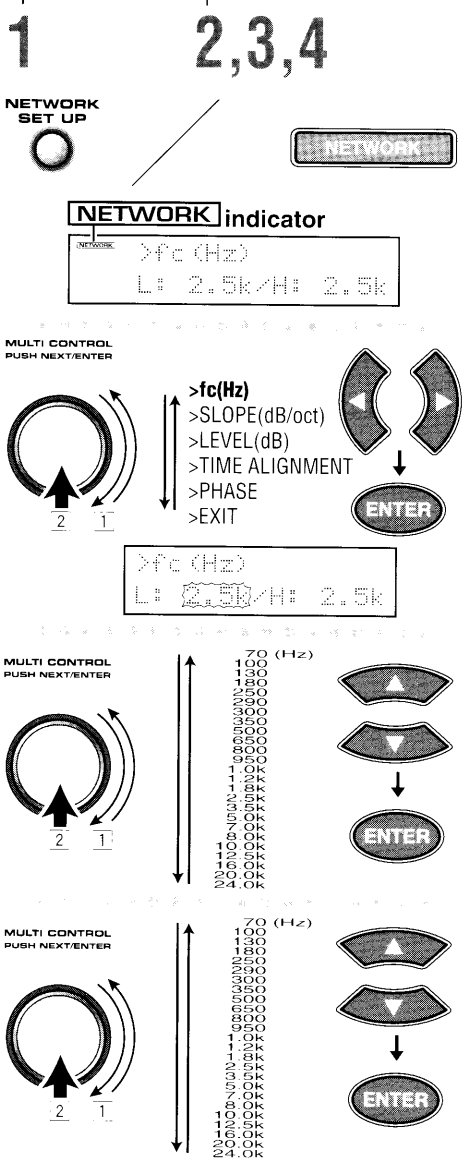
***The setting values change on the display as the jog dial is turned.**

■ Setting the Crossover Frequency (IIR Mode)





Open the slide cover



CAUTION

To prevent damage to the speakers, refer to the specifications (allowable input) for the tweeter, and do not set the frequency too low.

Start from step 2 if you automatically enter setup mode when selecting the output mode (page 25).

1. Press the NETWORK SET UP button.

The amplifier enters Network Setup mode.

2. Turn the MULTI CONTROL jog dial to select [>fc(Hz)], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

The "L: (low range)" frequency display flashes.

3. Turn the MULTI CONTROL jog dial to select the low-range crossover frequency, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ▲/▼ buttons to make the selection, and then press the ENTER button.

The "H: (high range)" frequency value flashes on the display. It is the same value as the low-range value.

4. Turn the MULTI CONTROL jog dial to select the high-range crossover frequency, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ▲/▼ buttons to make the selection, and then press the ENTER button.

This completes the crossover frequency setting.

- **To redo the settings or to make other settings, restart the procedure from step 2.**
- **To exit Network Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the NETWORK SET UP button.**

- **Setting the Slope Characteristics (IIR Mode)**
- **Adjusting the Level (IIR Mode)**
- **Setting the Time Alignment (IIR Mode)**
- **Selecting the Phase (IIR Mode)**

All settings for the IIR filter can be made using the MULTI CONTROL jog dial as shown in the procedure on the page at the left.
Only the selection options vary in the procedure below. Therefore, follow the table below, and perform the procedure by replacing the options ( ).

■ Setting the Slope Characteristics	■ Adjusting the Level	■ Setting the Time Alignment	■ Selecting the Phase

Start from step 2 when continuing from another setting procedure.

1. **Press the NETWORK SET UP button.**

2.

>SLOPE(dB/oct)	>LEVEL(dB)	>TIME ALIGNMENT	>PHASE
>fc(Hz) **>SLOPE(dB/oct)** >LEVEL(dB) >TIME ALIGNMENT >PHASE >EXIT	>fc(Hz) >SLOPE(dB/oct) **>LEVEL(dB)** >TIME ALIGNMENT >PHASE >EXIT	>fc(Hz) >SLOPE(dB/oct) >LEVEL(dB) **>TIME ALIGNMENT** >PHASE >EXIT	>fc(Hz) >SLOPE(dB/oct) >LEVEL(dB) >TIME ALIGNMENT **>PHASE** >EXIT
>SLOPE(dB/oct) L: -18 /H: -18	>LEVEL(dB) L: 0.0/H:-20.0	>TIME ALIGNMENT H: 0.00ms	>PHASE H: 0 °

3.

Low-range slope characteristics	Low-range level	Tweeter delay time based on the woofer	Tweeter phase based on the woofer
0 (dB/oct) −6 −12 −18 −24 −36 −96	✻ −25.0 (dB) −24.9 −24.8 ⋮ − 0.2 − 0.1 0.0	✻ BACK8.00ms BACK7.80ms BACK7.60ms ⋮ BACK0.02ms BACK0.01ms 0.00ms FWD 0.01ms FWD 0.02ms ⋮ FWD 7.60ms FWD 7.80ms FWD 8.00ms	0° 180°

4.

High-range slope characteristics	High-range level		
0 (dB/oct) −6 −12 −18 −24 −36 −96	✻ −25.0 (dB) −24.9 −24.8 ⋮ − 0.2 − 0.1 0.0		

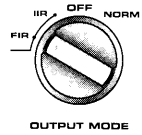
CAUTION

Slope 0 dB/oct is the flat signal state without filtering. An example of using this setting is described on page 71.

✻ **The setting values change on the display as the jog dial is turned.**

- **To exit Network Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the NETWORK SET UP button.**

Setting the FIR Filter



Check that the output mode is set to "FIR". If it is not set to "FIR", use the procedure on page 25 to make the setting.

Setting options

See pages 22 to 24 for the meanings of the setting options.

Crossover frequency settings (>fc(Hz)) (➡p.32)

This sets the crossover frequency.
You can select from 500 Hz, 650 Hz, 800 Hz, and 1.0 kHz.

Slope characteristic settings (fixed)

The low-pass filter (LPF) is fixed at –36 dB/oct.
The high-pass filter (HPF) is fixed at –12 dB/oct.
These options cannot be changed in the FIR filter settings.

Level adjustment (>LEVEL(dB)) (➡p.33)

This is used to adjust the low-range and high-range levels.
The level can be adjusted in 0.1-dB steps from 0 to –25 dB.

Time alignment settings (>TIME ALIGNMENT) (➡p.33)

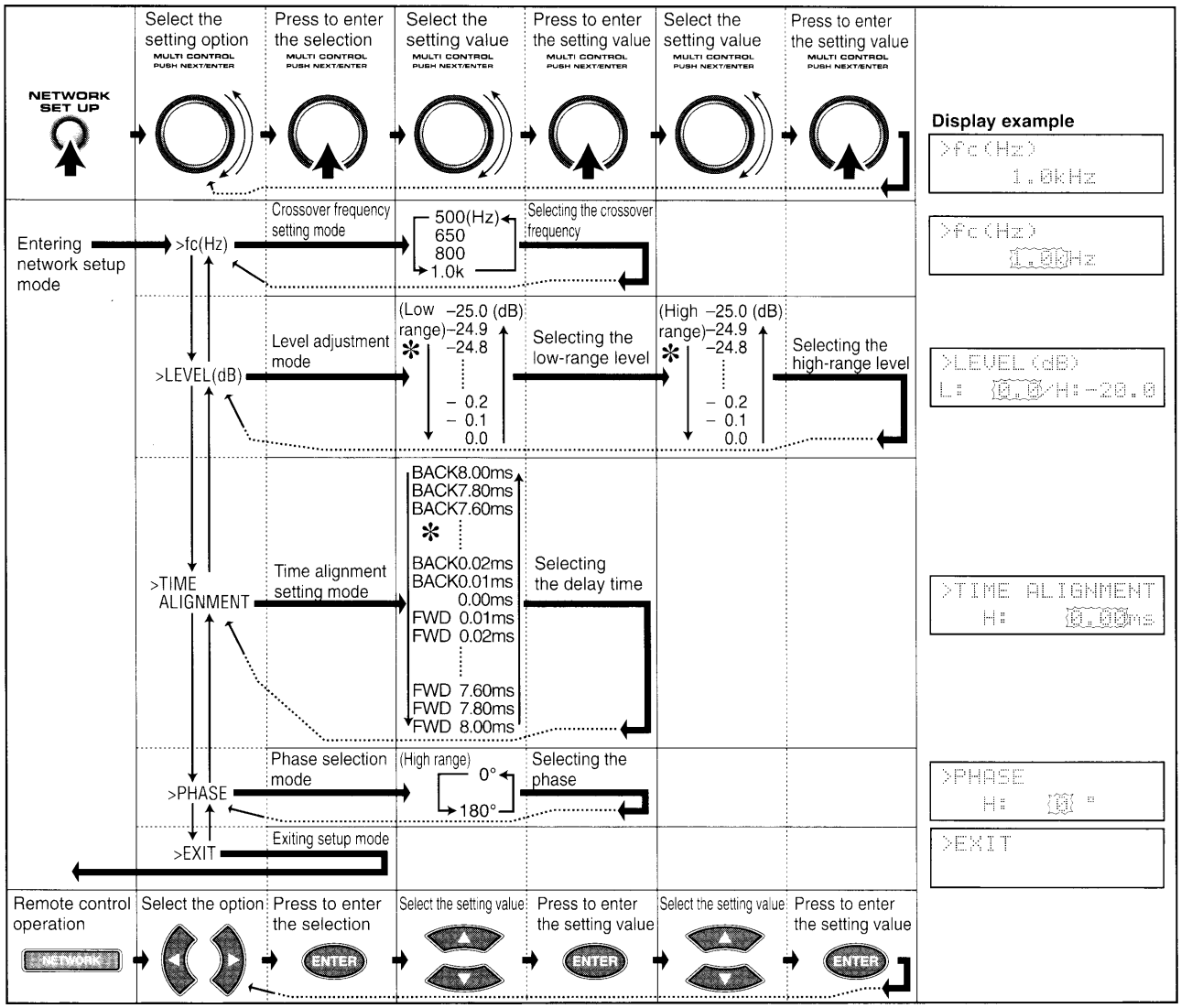
This allows you to set the delay time for the tweeter based on the woofer.
This setting can be made in 0.01-ms steps from 0 ms to 2.00 ms backward (BACK) and 0 ms to 2.00 ms forward (FWD) and in 0.2 -ms steps from 2.00 ms to 8.00 ms backward (BACK) and 2.00 ms to 8.00 ms forward (FWD).

Phase selection (>PHASE) (➡p.33)

The tweeter phase can be set to normal phase (0°) or reverse phase (180°) based on the woofer.

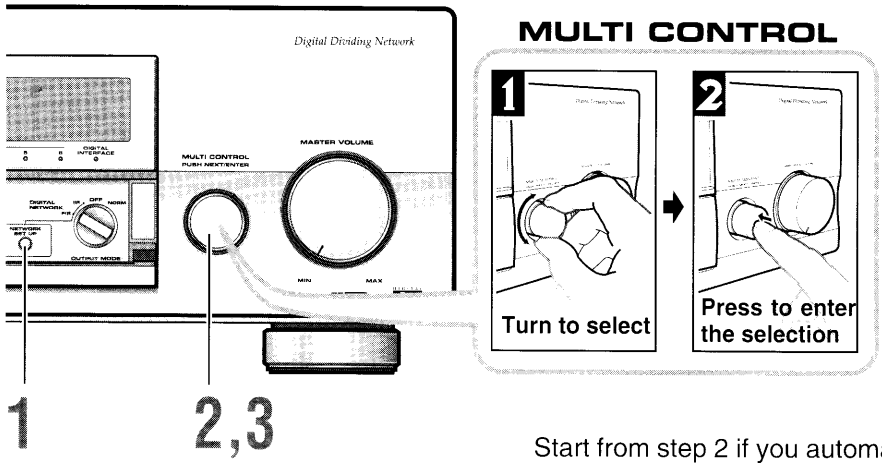
Refer to the table at the right and pages 32 and 33 to perform the settings.

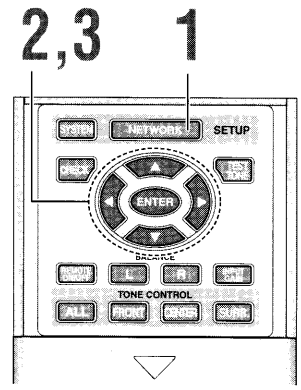
■ Table of Setting Operations (FIR Mode)



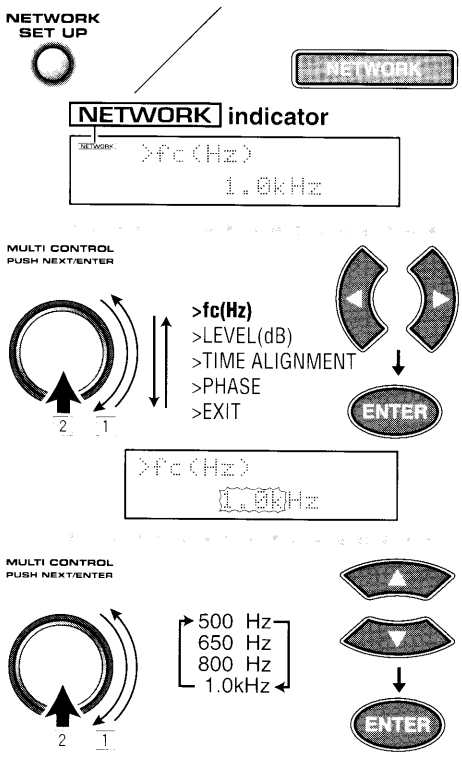
✻ The setting values change on the display as the jog dial is turned.

■ Setting the Crossover Frequency (FIR Mode)





Open the slide cover



CAUTION

To prevent damage to the speakers, refer to the specifications for the tweeter, and do not set the frequency too low.

Start from step 2 if you automatically enter setup mode when selecting the output mode (page 25).

1. Press the NETWORK SET UP button.

The amplifier enters Network Setup mode.

2. Turn the MULTI CONTROL jog dial to select [>fc(Hz)], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

The crossover frequency display flashes.

3. Turn the MULTI CONTROL jog dial to select the crossover frequency, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ▲/▼ buttons to make the selection, and then press the ENTER button.

This completes the crossover frequency setting.

- **To redo the settings or to make other settings, restart the procedure from step 2.**
- **To exit Network Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the NETWORK SET UP button.**

- **Adjusting the Level (FIR Mode)**
- **Setting the Time Alignment (FIR Mode)**
- **Selecting the Phase (FIR Mode)**

All settings for the FIR filter can be made using the MULTI CONTROL jog dial as shown in the procedure on the page at the left.
Only the selection options vary in the procedure below. Therefore, follow the table below, and perform the procedure by replacing the options ( ).

■ Adjusting the Level	■ Setting the Time Alignment	■ Selecting the Phase

Start from step 2 when continuing from another setting procedure.

1. **Press the NETWORK SET UP button.**

2.

>LEVEL(dB)

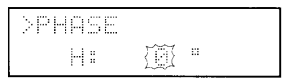
>fc(Hz)
>LEVEL(dB)
>TIME ALIGNMENT
>PHASE
>EXIT

>TIME ALIGNMENT

>fc(Hz)
>LEVEL(dB)
>TIME ALIGNMENT
>PHASE
>EXIT

>PHASE

>fc(Hz)
>LEVEL(dB)
>TIME ALIGNMENT
>PHASE
>EXIT



3.

Low-range level

* –25.0 (dB)
–24.9
–24.8
⋮
– 0.2
– 0.1
0.0

Tweeter delay time based on the woofer

* BACK8.00ms
BACK7.80ms
BACK7.60ms
⋮
BACK0.02ms
BACK0.01ms
0.00ms
FWD 0.01ms
FWD 0.02ms
⋮
FWD 7.60ms
FWD 7.80ms
FWD 8.00ms

Tweeter phase based on the woofer

0°
180°

4.

Adjust and set the high-range level as in step 3

* –25.0 (dB)
–24.9
–24.8
⋮
– 0.2
– 0.1
0.0

*** The setting values change on the display as the jog dial is turned.**

- **To exit Network Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the NETWORK SET UP button.**

System Setup

A total of eleven setting options are available in the system setup. Select the required option, and then make the setting or adjustments.

Setting Options

✻ This setting is for multichannel output. This setting does not need to be made when using two-channel output. The settings can also be stored in the sound memory C1 to C8 (➡p.55).

✻ Speaker Settings (>SP SIZE) (➡p.36)

This setting is used to set whether a speaker is connected and its size.
The jack that outputs the low-range sounds varies according to the setting.
Make the correct setting according to the speaker system, listening environment and other factors.

LARGE : Use this setting when the speaker has sufficient capacity for the playback of low-range sounds (100 Hz or less).

- In general, the size of the cone (diameter of the diaphragm) should be at least 12 cm(4.7in.).

SMALL : Use this setting when low-range sounds (100 Hz or less) are output from the front output jack or the subwoofer output jack.

- In general, the size of the cone (diameter of the diaphragm) is less than 12 cm(4.7in.).

NONE : Use this setting when no speakers are connected.

- When the centre speaker is set to NONE, the audio for the centre channel is output from the front output jack.
- When the surround speaker is set to NONE, the audio for the surround channel is output from the front output jack and the centre output jack.

ON : Use this setting when the subwoofer is connected.

PLUS : Use this setting when the low-range sounds that are normally output from the front, centre, and surround speakers are also output from the subwoofer (during multichannel output only).

OFF : Use this setting when the subwoofer is not connected.

The following 31 setting combinations are possible.

<table>
<tr><th>Front speaker</th><th>Centre speaker</th><th>Surround speaker</th><th>Subwoofer</th></tr>
<tr><td>LARGE</td><td>LARGE / SMALL / NONE</td><td>LARGE / SMALL / NONE</td><td>ON / PLUS / OFF</td></tr>
<tr><td rowspan="4">SMALL</td><td rowspan="2">SMALL</td><td>SMALL</td><td rowspan="4">ON
(This setting is automatically set to ON when the front speaker is set to SMALL.)</td></tr>
<tr><td>NONE</td></tr>
<tr><td rowspan="2">NONE</td><td>SMALL</td></tr>
<tr><td>NONE</td></tr>
</table>

The default settings are indicated in bold.

✻ Setting the Distance to the Speakers (>SP DISTANCE) (➡p.38)

This setting is used to specify the distance from the listening position to the speaker. Based on this distance, the amplifier then automatically calculates the delay time and adds this result to the output for each channel to obtain the optimum sound field at the listening position.
This setting can be specified from 0.1 m to 9.0 m in 0.1-m steps (from 0.5 feet to 30 feet in 0.5-feet steps).

✻ Adjusting the Level Using the Test Tone (>TEST TONE) (➡p.40)

The test tone can be used to adjust the output level for each channel.
The test tone is emitted from channel to channel so that you can adjust the output level for each channel while actually checking how you hear the sound from the listening position.
When the front channel is selected, the right and left balance adjustment mode (➡ p.51) is used. The adjustment width and steps for each channel are shown below.

Front	Centre
0.0 to –6.0 dB/0.1-dB steps	–10 dB to +10 dB/0.5-dB steps
–6.0 to –20.0 dB/0.5-dB steps	
–20.0 to –40.0 dB/10-dB steps	Surround R/surround L/subwoofer
–40.0 to –80.0 dB/20-dB steps	–20 dB to +10 dB/0.5-dB steps

Adjusting the level using the test tone also affects the channel level adjustment (➡ p.42) and right and left balance adjustment (➡ p.51).

✻ Adjusting the Channel Level (>CHANNEL LEVEL) (➡ p.42)

After using the test tone to adjust the output level for each channel, fine adjust the balance to the desired level while actually listening to music software.
When the front channel is selected, the right and left balance adjustment mode (➡ p.51) is used. The adjustment width and steps for each channel are shown below.

Front	Centre
0.0 to –6.0 dB/0.1-dB steps	–10 dB to +10 dB/0.5-dB steps
–6.0 to –20.0 dB/0.5-dB steps	
–20.0 to –40.0 dB/10-dB steps	Surround R/surround L/subwoofer
–40.0 to –80.0 dB/20-dB steps	–20 dB to +10 dB/0.5-dB steps

Adjusting the channel level also affects the level adjustment using the test tone (➡ p.40) and the right and left balance adjustment (➡ p.51).

✻ Setting the Crossover Frequency (>CROSS OVER) (➡p.44)

This setting is used to select the upper limit of the sound frequency (Hz) assigned when the bass for the channel set to SMALL under the speaker settings is output from the front output jack or the subwoofer output jack.
The available options are 70 Hz, 100 Hz, 150 Hz, 200 Hz, and PASS.
However, the PASS option is not available when SMALL or PLUS is set at the speaker settings.

✻ Turning On and Off the Low-cut Filter (>LOW CUT FILTER) (➡p.45)

This setting is used to select whether the low-cut filter is turned on (ON) or off (OFF) for the subwoofer output.
If the low-cut filter [notch filter with a crossover frequency (fc) of 35 Hz] is set to ON when distortion occurs in the subwoofer output, the distortion is eliminated without adversely affecting the impact of the bass.

Selecting the ANALOG 3 Input Function (>ANALOG 3) (➡p.45)

This setting is used to select whether the ANALOG 3 input jack is used for PHONO input (analogue record player: MM cartridge) or for LINE input.

Selecting the Digital Filter Mode (>DIGITAL FILTER) (➡p.45)

This setting is used to select whether the digital filter is used at the standard setting (STANDARD) or with the Legato Link Conversion function activated (LEGATO LINK).
Legato Link Conversion is a function where the original signal before recording is estimated based on the recorded signal in order to realize a wider playback frequency. This function is only enabled for the front channels. However, the amplifier automatically operates at the standard setting (STANDARD) when using a PDIF connection with a sampling frequency of 192 kHz and an input signal of 176.4 kHz.

Selecting the Display Format of the Display (>DISPLAY MODE) (➡p.45)

This setting is used to select the type of display information and layout (four types) on the display.

✻ Setting the LFE Attenuator (>LFE ATT) (➡ p.45)

When the subwoofer is set to ON or PLUS, this setting is used to attenuate the signal level when the input signal contains a large number of low frequency effect (LFE) signals that distort the output.
The available options are 0 dB (no attenuation), –10 dB, and MUTE (LFE component is turned off).

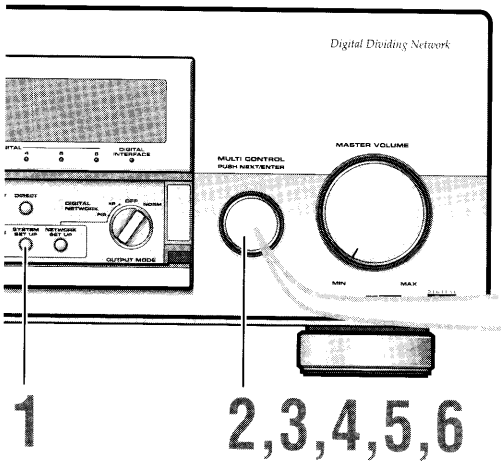
✻ Setting the Dynamic Range Control (>D–RANGE CONT.) (➡ p.45)

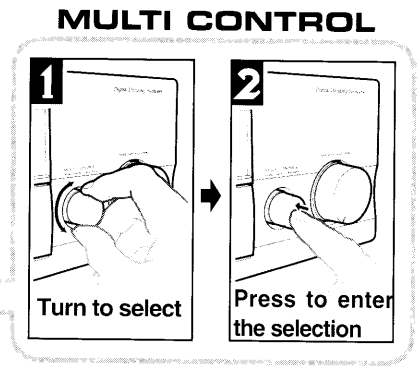
The dynamic range is an indicator of the playback performance. It is expressed in terms of a value (dB) indicating how well the spectrum from small to large sounds can be correctly played back (small sounds are played back without noise and large sounds are played back without distortion). Dynamic range control is a function that narrows the dynamic range. If you make the dynamic range control setting when you watch a movie at a low volume, you can still pick out even the most subtle sounds. This dynamic range control effect can only be obtained when using Dolby Digital software.

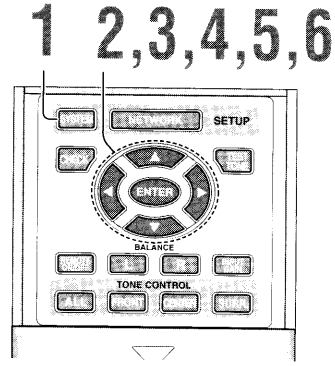
OFF: The dynamic range is not narrowed.
MID: The dynamic range is slightly narrowed.
MAX: The dynamic range is narrowed to the maximum amount.

To enjoy movies at a high volume, it is recommended that you set the dynamic range control to OFF.

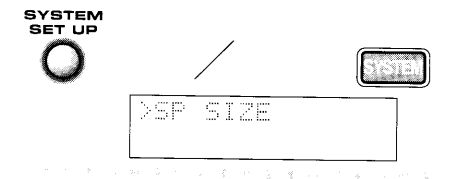
Speaker Settings

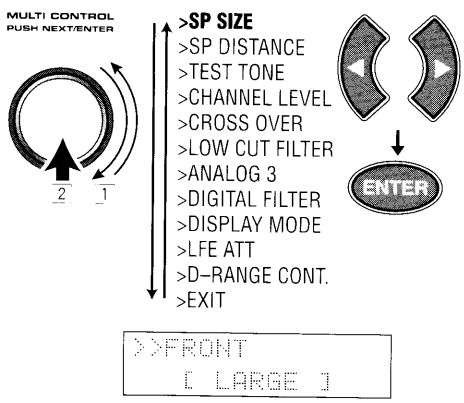


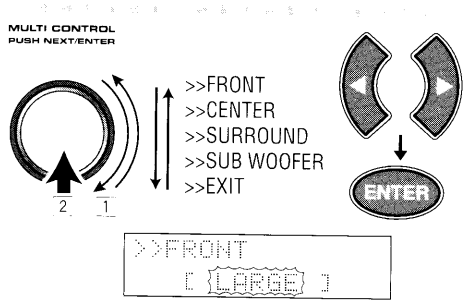


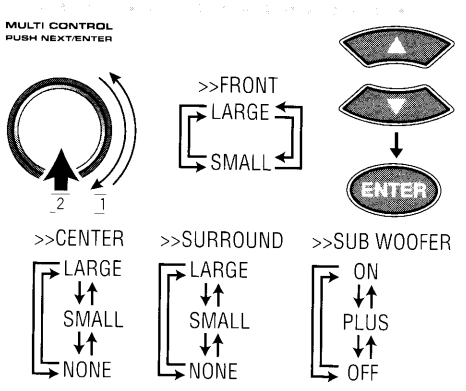


Open the slide cover









1. **Press the SYSTEM SET UP button.**
The amplifier enters System Setup mode.

2. **Turn the MULTI CONTROL jog dial to select [>SP SIZE], and then press the MULTI CONTROL jog dial.**

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.
The speaker (channel) and settings are displayed.

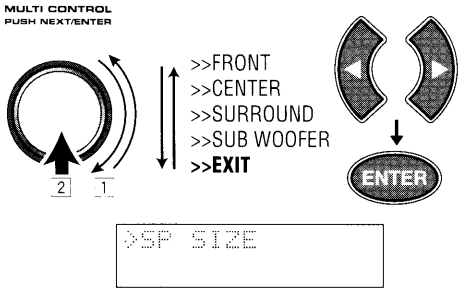
3. **Turn the MULTI CONTROL jog dial to select the speaker (channel) to be set, and then press the MULTI CONTROL jog dial.**

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.
The setting flashes on the display.

4. **Turn the MULTI CONTROL jog dial to select the speaker type, and then press the MULTI CONTROL jog dial.**

When using the remote control, use the▲/▼buttons to make the selection, and then press the ENTER button.

5. **Repeat steps 3 and 4, and make the settings for each speaker.**



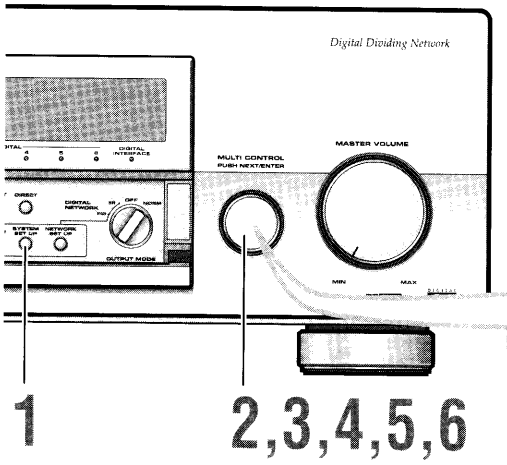
6. When you have finished making the settings, turn the MULTI CONTROL jog dial to select [>>EXIT], and then press the MULTI CONTROL jog dial.

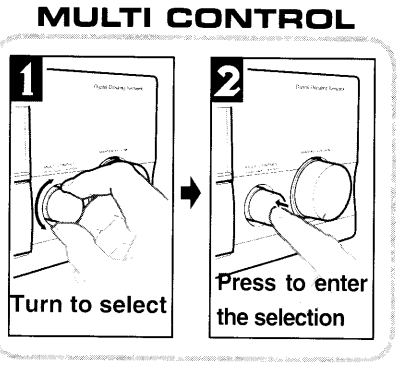
When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

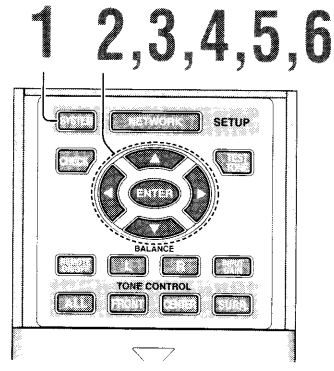
This completes the speaker settings.

- To redo the settings, restart the procedure from step 2.
- If continuing to make other settings, start the setting procedure for the other option(s) from step 2.
- To exit System Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the SYSTEM SET UP button.

Setting the Distance to the Speakers







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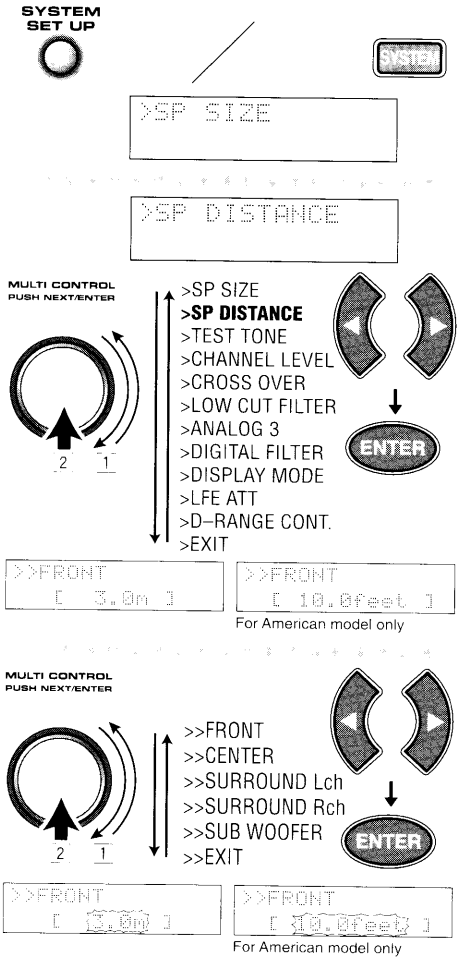
Start from step 2 if continuing from another setting procedure.



1. Press the SYSTEM SET UP button.

The amplifier enters System Setup mode.

2. Turn the MULTI CONTROL jog dial to select [>SP DISTANCE], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

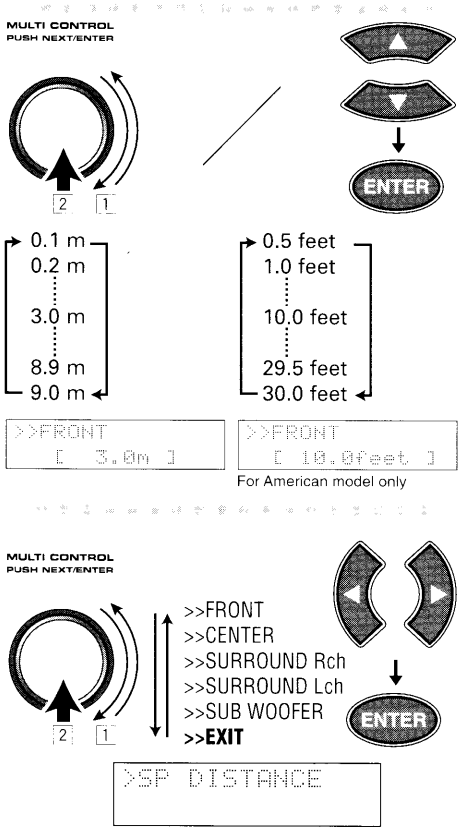
The speaker (channel) and distance settings are displayed.

3. Turn the MULTI CONTROL jog dial to select the speaker (channel) to be set, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

The setting flashes on the display.

- You cannot select channels that have been set to NONE or OFF.



4. **Turn the MULTI CONTROL jog dial to select the distance, and then press the MULTI CONTROL jog dial.**

When using the remote control, use the ▲/▼ buttons to make the selection, and then press the ENTER button.

5. **Repeat steps 3 and 4, and make the settings for each speaker.**

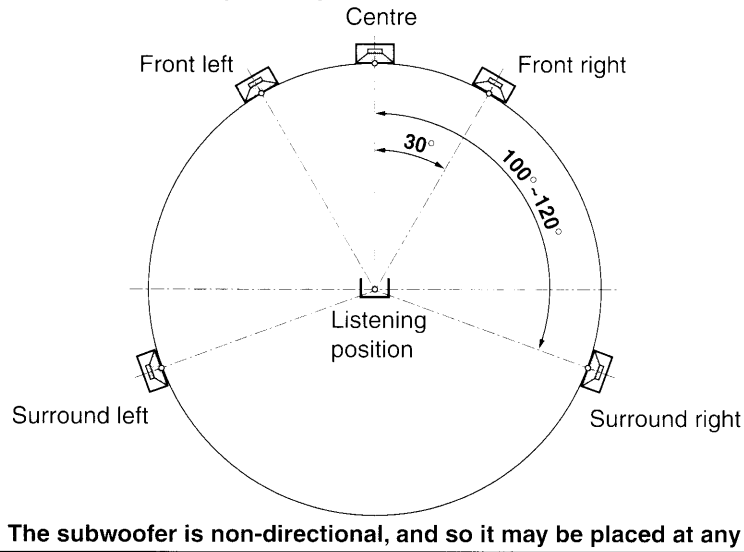
6. **When you have finished making the settings, turn the MULTI CONTROL jog dial to select [>>EXIT], and then press the MULTI CONTROL jog dial.**

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

This completes the settings for the distance to the speakers.

- **To redo the settings, restart the procedure from step 2.**
- **If continuing to make other settings, start the setting procedure for the other option(s) from step 2.**
- **To exit System Setup mode, either use the MULTI CONTROL jog dial to select [>EXIT] and then press the dial, or press the SYSTEM SET UP button.**

Recommended speaker placement for multichannel audio

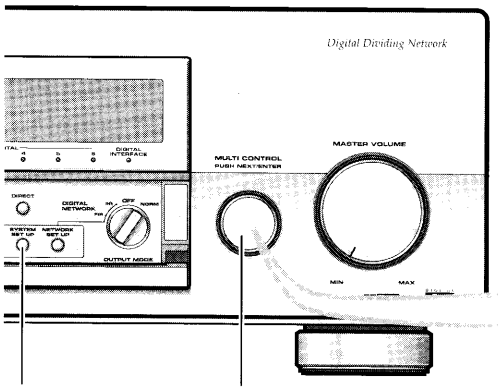


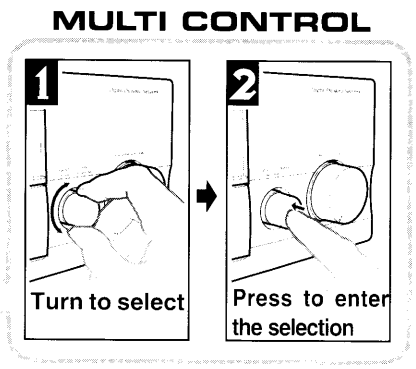
The subwoofer is non-directional, and so it may be placed at any position.

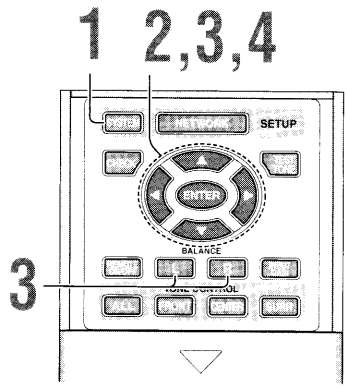
Adjusting the Level Using the Test Tone

You can adjust the level using the test tone. This adjustment also affects the following adjustments.

- Adjusting the Channel Level (➡p.42)
- Adjusting the Right and Left Front Channel Balance (➡p.51)







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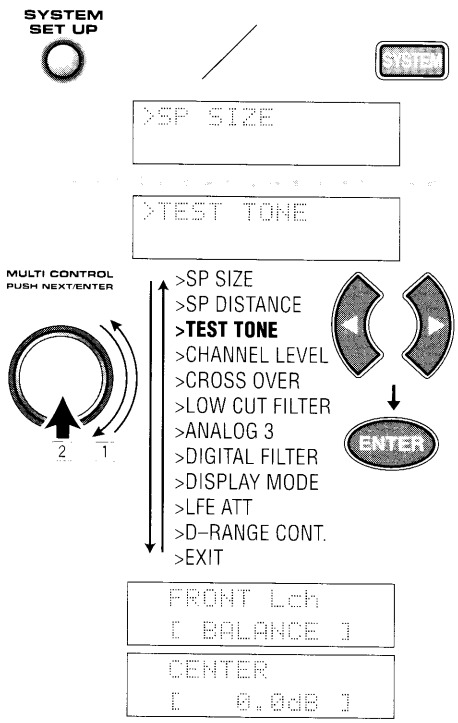
Start from step 2 if continuing from another setting procedure.



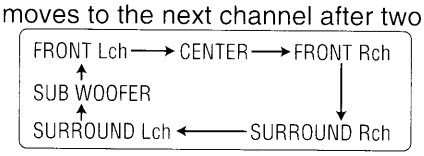
1. Press the SYSTEM SET UP button.

The amplifier enters System Setup mode.

2. Turn the MULTI CONTROL jog dial to select [>TEST TONE], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

The test tone is emitted from the output jacks in the order shown below. (If no operations are performed, the test tone moves to the next channel after two seconds.)



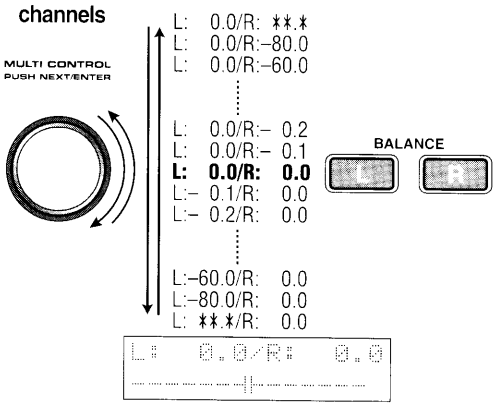
- The test tone is not output to channels that have been set to NONE or OFF.

3. Turn the MULTI CONTROL jog dial to adjust the level of the channel playing back the test tone.

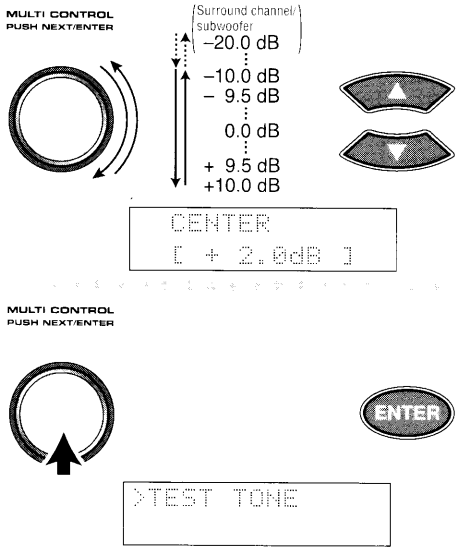
When using the remote control, use the BALANCE L/R buttons to adjust the front left and right channels (FRONT Lch/Rch), and use the ▲/▼ buttons to adjust centre, surround left and right, and subwoofer channels (CENTER, SURROUND Lch/Rch and SUB WOOFER).

- The right and left balance can be adjusted when the front left and right channels are selected.

■Adjusting the level for the front left and right channels



■ When adjusting the level for the centre, surround left and right, and subwoofer channels



- Adjust so that the sound from each speaker has the same loudness.
  However, be aware that the test tone is based on the same frequency at the same level for every channel. Therefore, since the sound from the subwoofer is attenuated in the high ranges, its sound is not as loud as other speakers. Be careful that you do not set the sound for the subwoofer too high.

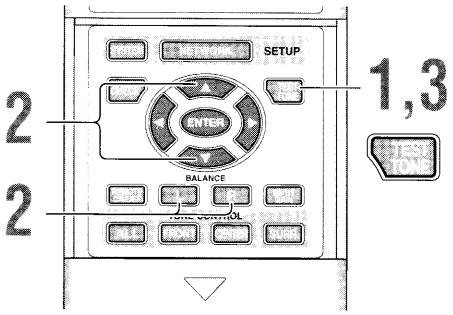
4. When you have finished making the adjustments, press the MULTI CONTROL jog dial.

When using the remote control, press the ENTER button.

The test tone stops, and the level adjustment is completed.

- **To redo the settings, restart the procedure from step 2.**
- **If continuing to make other settings, start the setting procedure for the other option(s) from step 2.**
- **To exit System Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the SYSTEM SET UP button.**

When using the remote control, you can go directly to level adjustment using the test tone without entering the System Setup mode.



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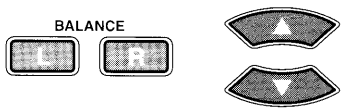
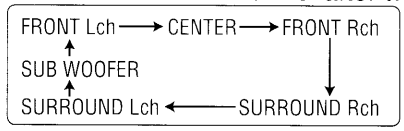


1. Press the TEST TONE button.

The test tone is emitted from the output jacks in the order shown below. (If no operations are performed, the test tone moves to the next channel after two seconds.)



- The test tone is not output to channels that have been set to NONE or OFF.

2. Use the BALANCE L/R buttons to adjust the front left and right channels (FRONT Lch/Rch), and use the ▲/▼ buttons to adjust centre, surround left and right, and subwoofer channels (CENTER, SURROUND Lch/Rch and SUB WOOFER).

- The right and left balance can be adjusted when the front left and right channels are selected.
- Adjust so that the sound from each speaker has the same loudness.

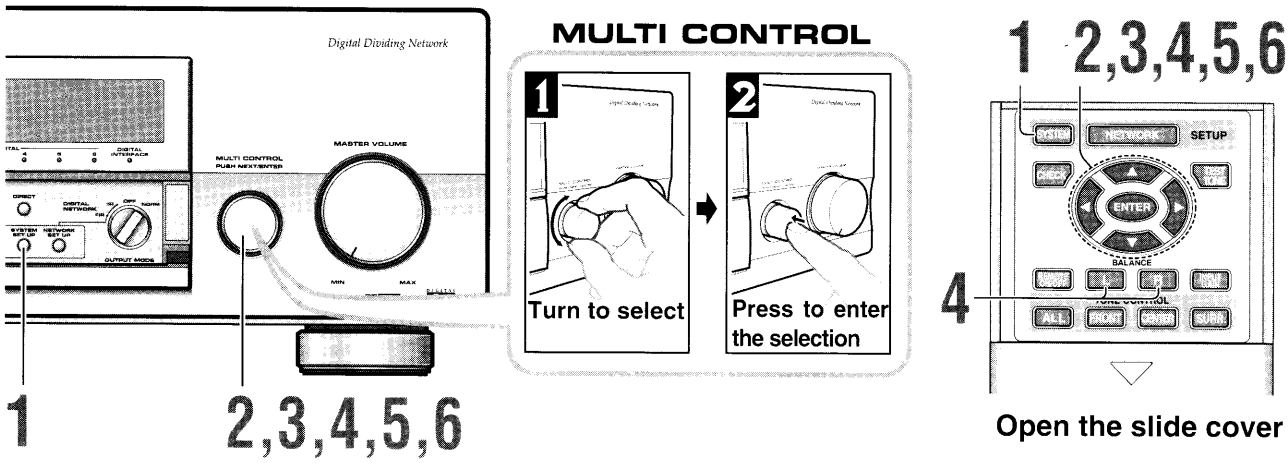
3. Press the TEST TONE button.

The test tone stops, and the amplifier returns to the normal operating status.

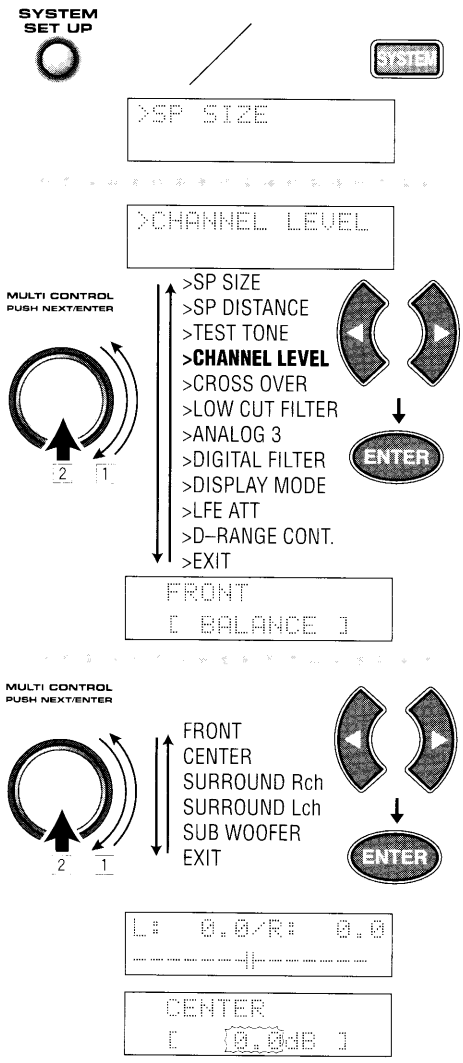
Adjusting the Channel Level

You can adjust the channel level. This adjustment also affects the following adjustments.

- Adjusting the Level Using the Test Tone (➡p.40)
- Adjusting the Right and Left Front Channel Balance (➡p.51)



Start from step 2 if continuing from another setting procedure.



1. Press the SYSTEM SET UP button.

The amplifier enters System Setup mode.

2. Turn the MULTI CONTROL jog dial to select [>CHANNEL LEVEL], and then press the MULTI CONTROL jog dial.

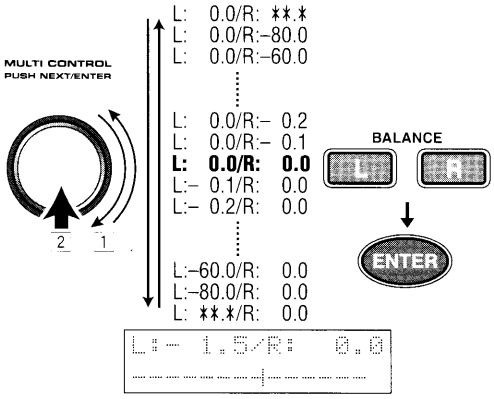
When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

3. Turn the MULTI CONTROL jog dial to select the channel to be adjusted, and then press the MULTI CONTROL jog dial.

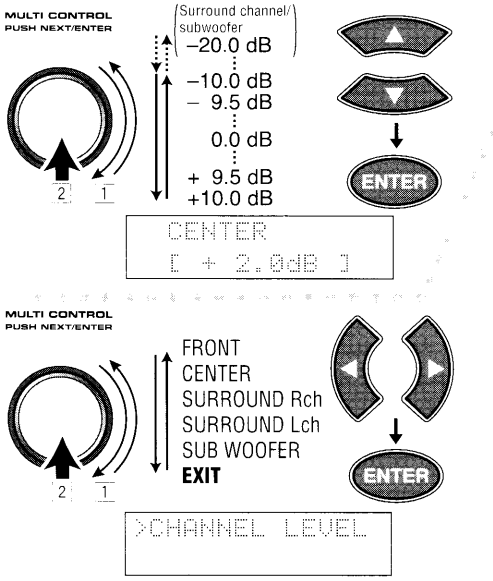
When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

- The right and left balance can be adjusted when the front channels are selected.
- You cannot select channels that have been set to NONE or OFF.

■When adjusting the level for the front left and right channels



■When adjusting the level for the centre, surround left and right, and subwoofer channels



4. Turn the MULTI CONTROL jog dial to adjust the level, and then press the MULTI CONTROL jog dial when you have finished making the adjustments.

When using the remote control, use the BALANCE L/R buttons to adjust the front left and right channels (FRONT Lch/Rch), and use the ▲/▼ buttons to adjust centre, surround left and right, and subwoofer channels (CENTER, SURROUND Lch/Rch and SUB WOOFER), and then press the ENTER button.

- Adjust so that the sound from each speaker has the same loudness.

5. Repeat steps 3 and 4, and adjust each channel.

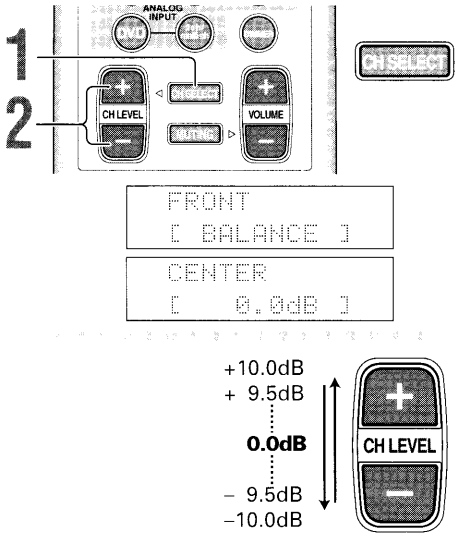
6. When you have finished making all the level adjustments, turn the MULTI CONTROL jog dial to select [EXIT], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

This completes the channel level adjustment.

- **To redo the settings, restart the procedure from step 2.**
- **If continuing to make other settings, start the setting procedure for the other option(s) from step 2.**
- **To exit System Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the SYSTEM SET UP button.**

When using the remote control, you can go directly to channel level adjustment without entering the System Setup mode.



1. Use the CH SELECT button to select the channel.

The channels change in the order shown below.

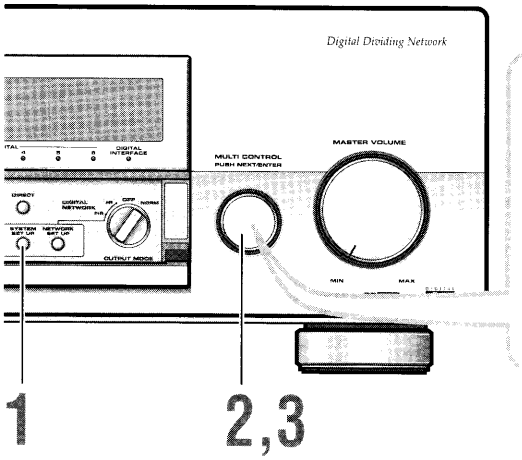
FRONT → CENTER → SURROUND Rch → SURROUND Lch → SUB WOOFER → FRONT

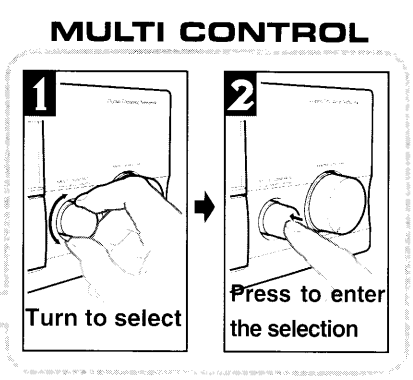
- You cannot select channels that have been set to NONE or OFF.

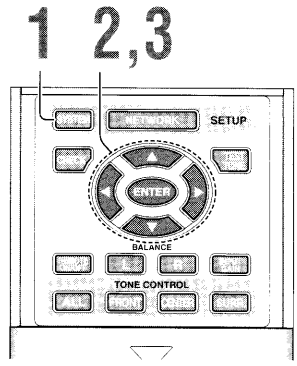
2. Use the CH LEVEL +/– buttons to adjust the level. (The front channels can also be adjusted using the BALANCE L/R buttons.)

- The amplifier returns to the normal operating status if you do not perform any operations for five seconds.

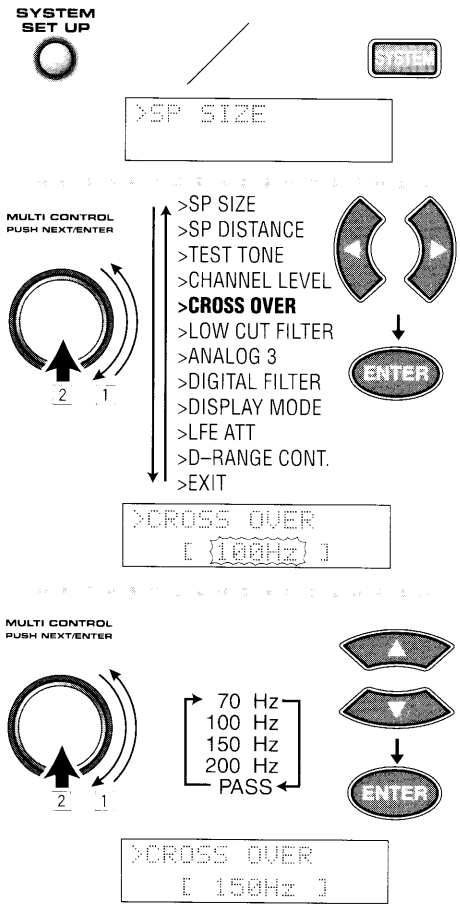
Setting the Crossover Frequency (Multichannel)







Open the slide cover



Start from step 2 if continuing from another setting procedure.

1. Press the SYSTEM SET UP button.

The amplifier enters System Setup mode.

2. Turn the MULTI CONTROL jog dial to select [>CROSS OVER] and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to make the selection, and then press the ENTER button.

The crossover frequency flashes on the display.

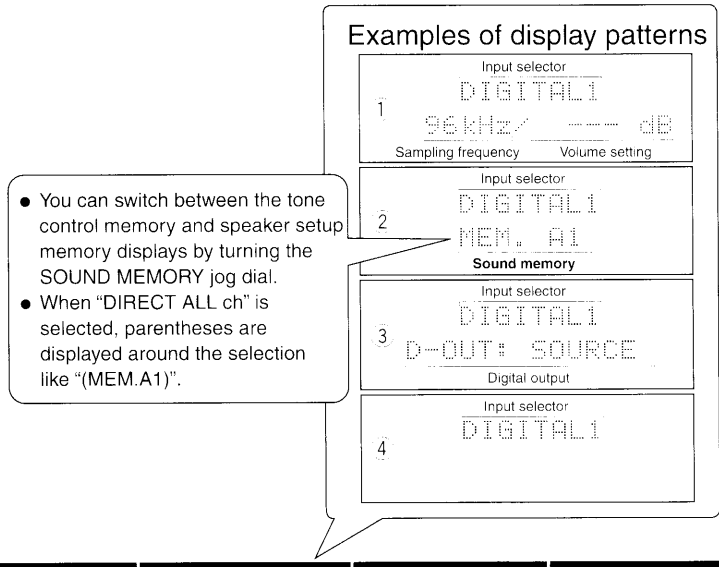
3. Turn the MULTI CONTROL jog dial to select the crossover frequency, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ▲/▼ buttons to make the selection, and then press the ENTER button.

This completes the crossover frequency setting.

- **However, the PASS option is not available when SMALL or PLUS is set at the speaker settings.**
- **To redo the settings, restart the procedure from step 2.**
- **If continuing to make other settings, start the setting procedure for the other option(s) from step 2.**
- **To exit System Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the SYSTEM SET UP button.**
- **When PASS is selected, signals without any band limitations are output from SUB WOOFER OUT jack.**

The six settings shown below can be made with the MULTI CONTROL jog dial using the same procedure on the page at the left.
Only the selection options vary in the procedure below. Therefore, follow the table below, and perform the procedure by replacing the options( ).



Turning On and Off the Low-cut Filter	Selecting the ANALOG 3 Input Function	Selecting the Digital Filter Mode	Selecting the Display Format of the Display	Setting the LFE Attenuator	Setting the Dynamic Range Control

Start from step 2 if continuing from another setting procedure.

1. **Press the SYSTEM SET UP button.**

2.

>LOW CUT FILTER	>ANALOG 3	>DIGITAL FILTER	>DISPLAY MODE	>LFE ATT	>D-RANGE CONT.
>SP SIZE	>SP SIZE	>SP SIZE	>SP SIZE	*1 >SP SIZE	>SP SIZE
>SP DISTANCE	>SP DISTANCE	>SP DISTANCE	>SP DISTANCE	>SP DISTANCE	>SP DISTANCE
>TEST TONE	>TEST TONE	>TEST TONE	>TEST TONE	>TEST TONE	>TEST TONE
>CHANNEL LEVEL	>CHANNEL LEVEL	>CHANNEL LEVEL	>CHANNEL LEVEL	>CHANNEL LEVEL	>CHANNEL LEVEL
>CROSS OVER	>CROSS OVER	>CROSS OVER	>CROSS OVER	>CROSS OVER	>CROSS OVER
>LOW CUT FILTER	>LOW CUT FILTER	>LOW CUT FILTER	>LOW CUT FILTER	>LOW CUT FILTER	>LOW CUT FILTER
>ANALOG 3	**>ANALOG 3**	>ANALOG 3	>ANALOG 3	>ANALOG 3	>ANALOG 3
>DIGITAL FILTER	>DIGITAL FILTER	**>DIGITAL FILTER**	>DIGITAL FILTER	>DIGITAL FILTER	>DIGITAL FILTER
>DISPLAY MODE	>DISPLAY MODE	>DISPLAY MODE	**>DISPLAY MODE**	>DISPLAY MODE	>DISPLAY MODE
>LFE ATT	>LFE ATT	>LFE ATT	>LFE ATT	**>LFE ATT**	>LFE ATT
>D-RANGE CONT.	>D-RANGE CONT.	>D-RANGE CONT.	>D-RANGE CONT.	>D-RANGE CONT.	**>D-RANGE CONT.**
>EXIT	>EXIT	>EXIT	>EXIT	>EXIT	>EXIT

3.

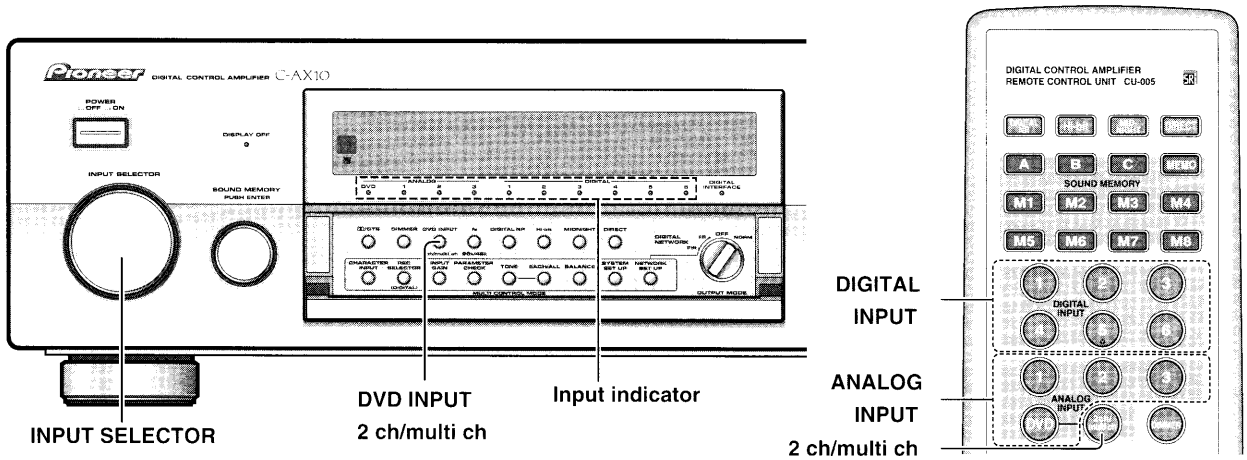
Select ON or OFF for the filter.	Select LINE or PHONO.	Select STANDARD or LEGATO LINK.	Select a display pattern (① to ④)	Select 0 dB, –10 dB, or MUTE.	Select OFF, MID, or MAX.
ON / OFF	LINE / PHONO	STANDARD / LEGATO LINK	1 2 3 4	0dB → –10dB → MUTE	OFF → MID → MAX
			See the figure at the top right for display patterns 1 to 4.		

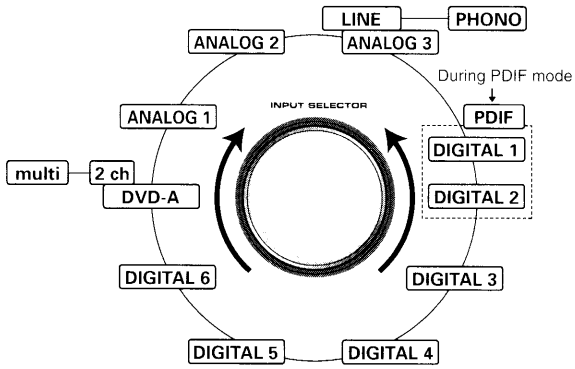
- **To exit System Setup mode, either use the MULTI CONTROL jog dial to select >EXIT and then press the dial, or press the SYSTEM SET UP button.**

***1 The LFE attenuator settings are disabled when the subwoofer is set to OFF.**

Selecting Input/Output

Selecting the Input Signal





Turn the INPUT SELECTOR to select the input signal that you want to hear.

When using the remote control, press one of the following buttons: DIGITAL INPUT 1 to 6, ANALOG INPUT 1 to 3, or DVD.

The selected input indicator turns on.

memo

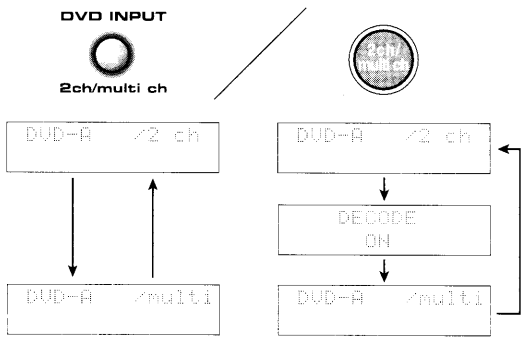
The input selector display can be changed to any user-selected name. (See page 66.)

■Analogue Input

Selecting DVD 2 ch/multi ch

When DVD-A is selected as the input signal, you can select whether to use two channels (FRONT L/R) or multi channels (FRONT L/R, SURROUND L/R, CENTER, and SUB WOOFER).

If the DVD-A input is set to two channels and the input signal is a 2-channel-only signal, an even higher quality sound is delivered since the remaining channel circuits are assigned to the front channels and are connected in parallel (Flexible A/D-D/A System ➡ p.76).



Press the DVD Input Selector button (2 ch/multi ch) when the input signal is DVD-A

The setting switches between "2ch" and "multi" each time that the button is pressed.

When using the remote control, the setting changes from "2ch input", "DECODE ON (Dolby Pro Logic)", and "multi ch input" each time that the 2ch/multi ch(DD/DTS) button is pressed.

- When 2 ch is switched to multi ch, digital NR is automatically turned off.

memo

This function does not convert the input signal from multichannel to two channels.

Selecting LINE input and PHONO input

You can select LINE input or PHONO input (for MM types) for ANALOG 3. (➡p.45)

■Digital Input

PDIF (Pioneer Digital Interface) Connection

By connecting this amplifier to the DVD-Audio-compatible player DV-AX10 (sold separately) with special cables, you can transmit the digital signals without conversion for not only two channels, but also for multichannel signals and signals with a sampling frequency of 192 kHz and 176.4 kHz.

PDIF is Pioneer's own custom digital interface.
The DV-AX10 digital output signals may vary depending on the restrictions due to copyright protection and the DV-AX10 output signal settings. Therefore, it is recommended that the amplifier use not only a PDIF connection but also an analogue connection with the DV-AX10.
For more information about PDIF, see the DV-AX10 operating instructions.

Connection

Make the connections in the order shown below as outlined on page 16.

① Connect the supplied PDIF connection cable to the PIDF jack on the amplifier and DV-AX10.
② Use two coaxial cables to connect the 1 COAX jack on the amplifier to the 1 COAX PCM jack on the DV-AX10 and the 2 COAX jack on the amplifier to the 2 COAX jack.

Note: See the DV-AX10 operating instructions for the connection method.

The amplifier and DV-AX10 automatically begin transmission in PDIF mode only when the following conditions are met.

- A PDIF connection has been made (using three cables)
- The INPUT SELECTOR has been set to "DIGITAL 1" or "DIGITAL 2".
- The DV-AX10 is turned on.

PDIF transmission operates in the following way.

● Selection of the input signal

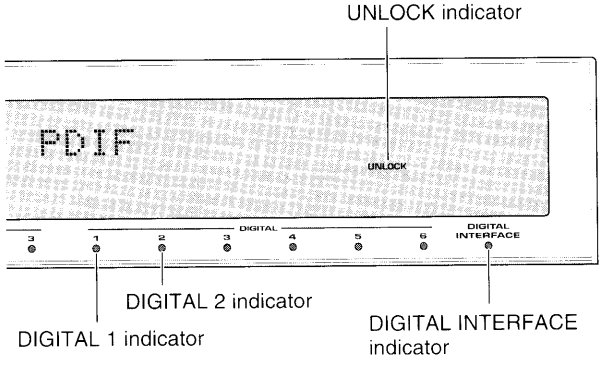
"DIGITAL 1" and "DIGITAL 2" are replaced by "PDIF".

● Input indicator

When PDIF is selected, the indicators for DIGITAL INTERFACE and DIGITAL 1 and DIGITAL 2 turn on.

● Selection of the digital REC OUT signal

"DIGITAL 1" and "DIGITAL 2" are replaced by "PDIF".



● Output signal

The output signal varies depending on the type of input signal. See page 49 for the output signals for each input signal.

● Function restrictions

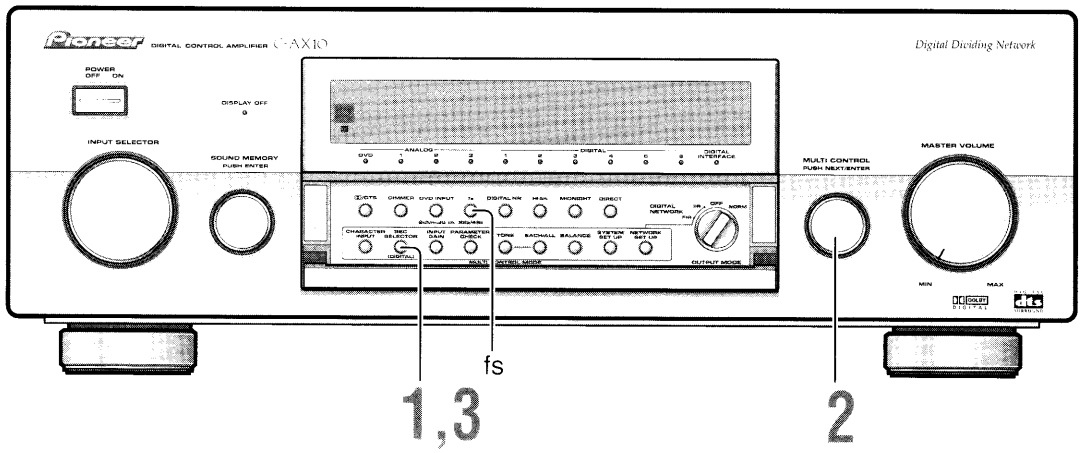
Some functions may not operate for certain types of input signals. For details, see page 68.

When the UNLOCK indicator turns on

If the UNLOCK indicator turns on when digital input is selected, this indicates that the digital signal is not being input for some reason, such as when the signal is not being received from the digital equipment, nothing is connected to the digital input jack, or when the connection is disconnected. Check the connection whenever this indicator turns on.

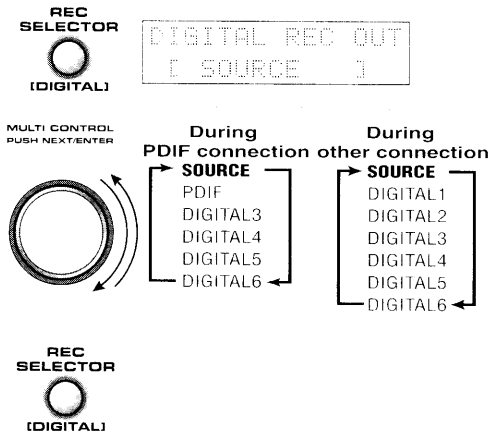
When NON-AUDIO is displayed

If NON-AUDIO is displayed when digital input is selected, this indicates that the input signal is not an audio signal. Check the input signal whenever NON-AUDIO is displayed.



Selecting the Digital REC OUT Signal (Amplifier Unit Operation Only)

You can select the digital REC OUT signal (OPT, COAX) independently from the input signal.



1. Press the REC SELECTOR [DIGITAL] button.

The amplifier enters Digital REC OUT Signal Selection mode.

2. Turn the MULTI CONTROL jog dial to select the signal to be output (➡p.49).

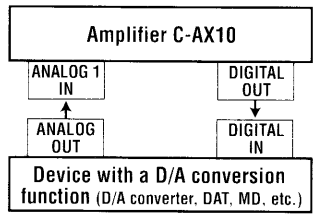
You can select from SOURCE (options selected with the INPUT SELECTOR), DIGITAL1 to 6 and OFF (no output).

3. Press the REC SELECTOR [DIGITAL] button.

This exits Digital REC OUT Signal Selection mode.

CAUTION

Do not select an analogue output from a device that is receiving a digital signal from the amplifier and performing a D/A conversion operation (such as digital recording, for instance) as the input signal for the amplifier. (An example of this is shown for the connection and setting configuration in the figure at the right.)
In this case, a loop is formed between the input and output for the amplifier and the connected device. This can lead to oscillation or a breakdown.

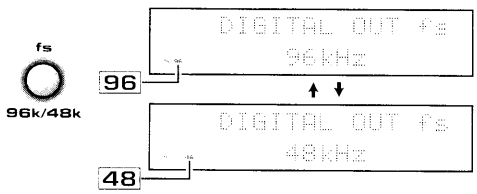


INPUT SELECTOR : ANALOG 1
REC SELECTOR : SOURCE

Operation mode: Digital recording or other D/A conversion operation

Selecting the Digital Output Sampling Frequency during Analogue Input (Amplifier Unit Operation Only)

In this amplifier, the analogue input signal normally undergoes A/D conversion at 96 kHz/24 bit and is then processed as a digital signal. You can select whether the digital signal is output at 96 kHz/24 bit without further conversion or whether it drops down to 48 kHz/24 bit during digital output.



Press the fs 96k/48k button when the input is analogue.

The selection switches between 96 kHz and 48 kHz each time that the button is pressed.

memo

This operation can only be performed in analogue two-channel input when REC OUT is set to SOURCE. When there are different settings, "INPUT/REC OUT" flashes to indicate that this operation cannot be performed.

Table of Input/Output Signals

■Analogue Output Signal

The signal selected in "Selecting the Input Signal" is output. In this case, the signals that have undergone digital processing are output from the PRE OUT jack and the input signals are output from the REC OUT jack without conversion.

			Output								
			PRE OUT							REC OUT	
			FRONT OUT								
			OUT 1 HIGH			OUT 2 LOW			CENTER OUT SUB WOOFER OUT SURROUND OUT	ANALOG 1 REC OUT	ANALOG 2 REC OUT
			OUTPUT MODE			OUTPUT MODE					
			FIR, IIR	NORM	OFF	FIR, IIR	NORM	OFF			
INPUT SELECTOR	DVD-A	multi	○	○	×	○	○	×	○	○ Front only	○ Front only
		2 ch	○	○	×	○	○	×	○ during Pro Logic	○	○
	ANALOG 1		○	○	×	○	○	×	○ during Pro Logic	×	○
	ANALOG 2		○	○	×	○	○	×	○ during Pro Logic	○	×
	ANALOG 3	LINE	○	○	×	○	○	×	○ during Pro Logic	○	○
		PHONO	○	○	×	○	○	×	×	×	×
	DIGITAL 1, 2, 3, 4, 5, 6 (PCM signal)		○	○	×	○	○	×	○ during Pro Logic	×	×
	DIGITAL 1, 2, 3, 4, 5, 6 (Dolby Digital/DTS signal)		○	○	×	○	○	×	○ during DECODE ON	×	×
	PDIF (During PDIF connection)	2-channel (fs: 96 kHz or less) signal	○	○	×	○	○	×	○ during Pro Logic	×	×
		fs: 176.4 kHz, 192 kHz signal	○	○	×	○	○	×	×	×	×
		Multichannel signal	○	○	×	○	○	×	○	×	×
			(High range)	(All ranges)		(Low range)	(All ranges)				

■Digital REC OUT Signal

The signals that are output from the DIGITAL OUT jack can be changed by selecting the digital REC OUT signal.

					Output (DIGITAL OUT)
Digital REC Selector (REC SELECTOR)	SOURCE	INPUT SELECTOR	DVD-A	multi	×
				2 ch	The input signal undergoes A/D conversion and is output (Digital NR, Midnight, and fs options are available) *2
			ANALOG 1		The input signal undergoes A/D conversion and is output (Digital NR, Midnight, and fs options are available) *2
			ANALOG 2		The input signal undergoes A/D conversion and is output (Digital NR, Midnight, and fs options are available) *2
			ANALOG 3	LINE	The input signal undergoes A/D conversion and is output (Digital NR, Midnight, and fs options are available) *2
				PHONO	The input signal undergoes A/D conversion and is output (Digital NR, Midnight, and fs options are available)
			DIGITAL 1, 2, 3, 4, 5, 6 (PCM signal)		The input signal is output (Digital NR, Midnight, and Hi-bit options are available) *2
			DIGITAL 1, 2, 3, 4, 5, 6 (Dolby Digital/DTS signal)		×
			PDIF (During PDIF connection)	2-channel (fs: 96 kHz or less) signal	The input signal sent through the PDIF connection is output (Digital NR, Midnight, and Hi-bit options are available) *3
				fs: 176.4 kHz, 192 kHz signal	×
				Multichannel signal	×
	DIGITAL 1				Regardless of the setting made in "Selecting the Input Signal", the DIGITAL 1 input signal is output without conversion
	DIGITAL 2				Regardless of the setting made in "Selecting the Input Signal", the DIGITAL 2 input signal is output without conversion
	DIGITAL 3				Regardless of the setting made in "Selecting the Input Signal", the DIGITAL 3 input signal is output without conversion
	DIGITAL 4				Regardless of the setting made in "Selecting the Input Signal", the DIGITAL 4 input signal is output without conversion
	DIGITAL 5				Regardless of the setting made in "Selecting the Input Signal", the DIGITAL 5 input signal is output without conversion
	DIGITAL 6				Regardless of the setting made in "Selecting the Input Signal", the DIGITAL 6 input signal is output without conversion
	PDIF *1			2-channel (fs: 96 kHz or less) signal	The input signal sent through the PDIF connection is output without conversion *3
				fs: 176.4 kHz, 192 kHz signal	×
				Multichannel signal	×
	OFF				× (The REC output is off. No signals are output from the DIGITAL OUT jack.)

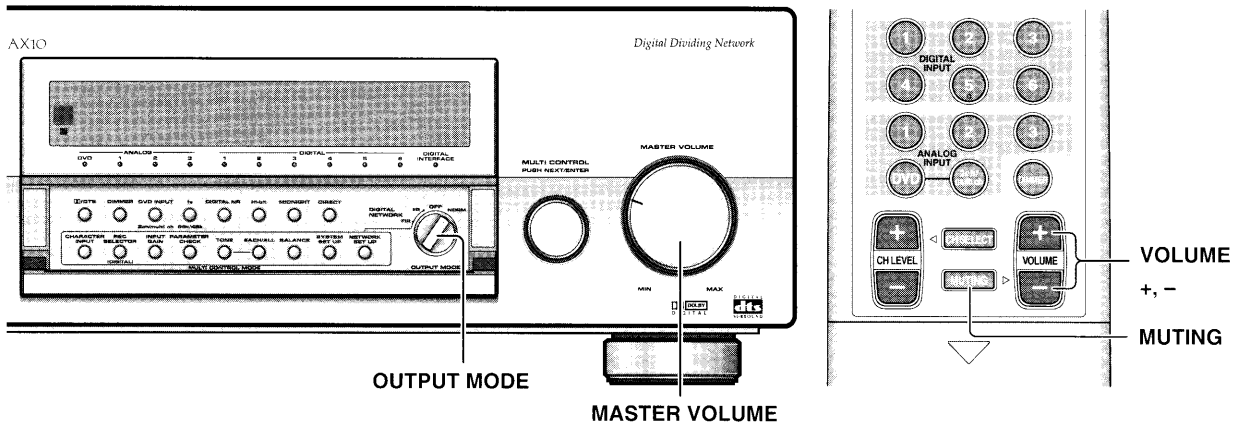
*1. This applies only when the PDIF connection is made and "PDIF" is selected with the INPUT SELECTOR.

*2. No signals are output when Pro Logic Decode is set to ON.

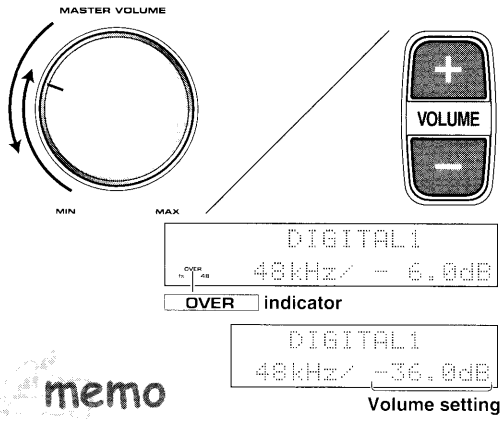
*3. The signals in the DVD-Audio format may be unable to be output due to restrictions for copyright protection. For details, see the DV-AX10 operating instructions.

- The signals marked by "×" are not output.
- When the Direct function is on, the Digital NR and Midnight functions are disabled. (When the Direct function is off, these functions operate according to their settings.)
- The Digital NR and Midnight functions cannot be turned on at the same time.
  For details, refer to the page for the specific function (Direct ➡ p.62, fs ➡ p.48, Digital NR ➡ p.61, Midnight➡ p.61, Hi-bit ➡ p.62)

Adjusting the Input/Output Level



Adjusting the Volume



memo

In the above illustration, the volume setting is displayed only when the display is set to display the volume setting in "Selecting the Display Format of the Display" (➡p.45)

Turn the MASTER VOLUME knob to adjust the volume.

When using the remote control, use the VOLUME +/– buttons to adjust the volume.

Turn down the volume if the OVER indicator turns on. If the OVER indicator still remains on, change the input gain setting so that the indicator no longer turns on (➡p.52). (This adjustment is made since the input signal is amplified by digital processing near the maximum volume setting.)

Muting (Remote Control Operation Only)

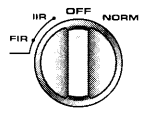
You can temporarily turn off the sound at the touch of a button.

Press the MUTING button.

The sound is turned off. The sound returns to the original volume setting when you press the button again.

Output Off (Amplifier Unit Operation Only)

You can also turn off the sound at the amplifier unit.



memo

If the selector is momentarily set to IIR when switching between FIR and OFF, the output mode display flashes and no sound is output. However, operation returns to normal when you set to FIR or OFF.

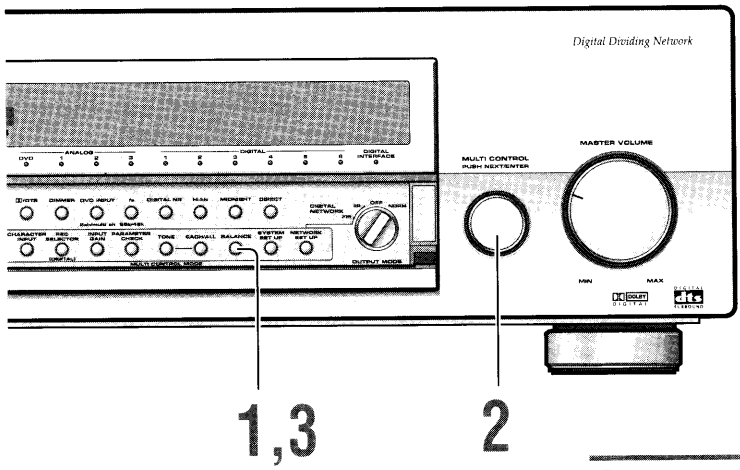
Set the OUTPUT MODE selector to OFF.

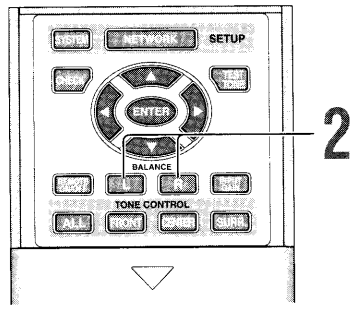
The sound is turned off. The sound returns to the original volume setting when you return the mode to the original setting. When you set the amplifier to a mode other than the original setting after selecting the OFF setting, the output mode display flashes and no sound is output.

Adjusting the Right and Left Front Channel Balance

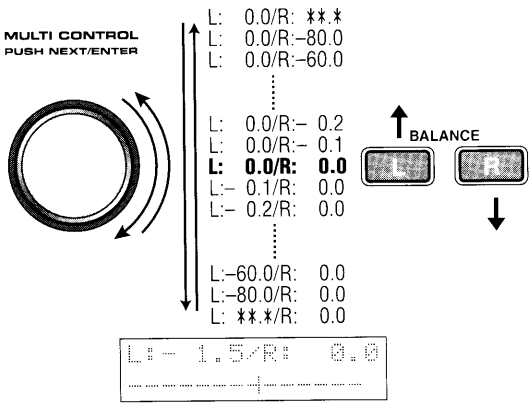
You can adjust the right and left balance of the front channels. This adjustment also affects the following adjustments.

- Adjusting the Level Using the Test Tone (➡ p.40)
- Adjusting the Channel Level (➡ p.42)





Open the slide cover



Operation steps

- 0.0 to – 6.0 dB: advances in 0.1-dB steps
- – 6.0 to – 20.0 dB: advances in 0.5-dB steps
- – 20.0 to – 40.0 dB: advances in 10-dB steps
- – 40.0 to – 80.0 dB: advances in 20-dB steps

1. Press the BALANCE button.

The amplifier enters Balance Adjustment mode.

You do not need to perform this operation when using the remote control.

2. Turn the MULTI CONTROL jog dial to adjust the right and left balance.

Turning the dial to the right lowers the volume of the left channel, and turning the dial to the left lowers the volume of the right channel.

When using the remote control, press the BALANCE L or R buttons to adjust.

Pressing the L button lowers the volume of the right channel, and pressing the R button lowers the volume of the left channel.

- The centre is indicated by the display "L:0.0/R:0.0".
- The display "✱✱. ✱" stands for $-\infty$. No sound is emitted for channels that are set to this value.

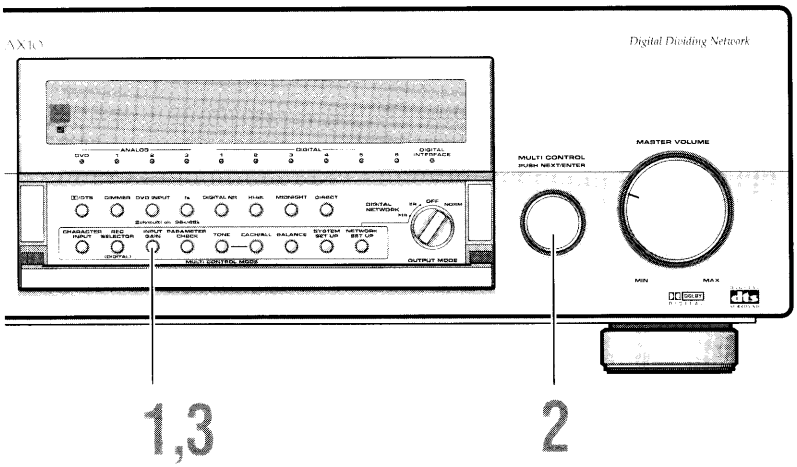
3. Press the BALANCE button.

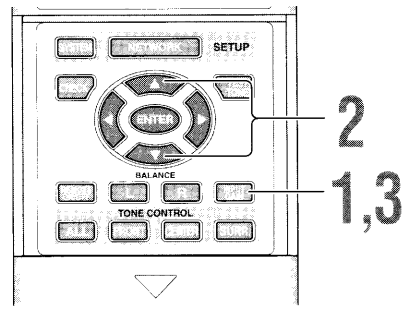
The amplifier exits balance adjustment mode.

When using the remote control, the amplifier returns to the normal operating status if you do not perform any operations for five seconds.

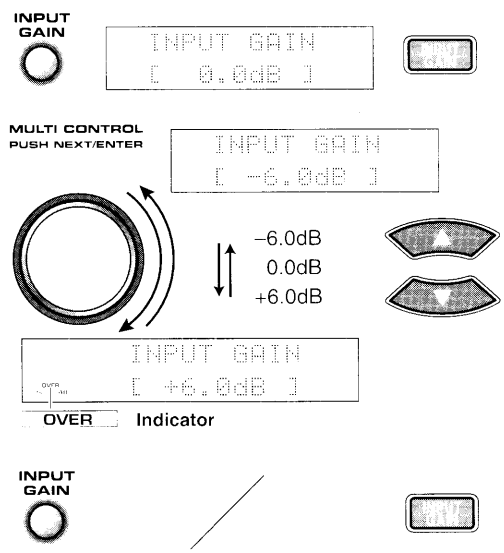
Adjusting the Input Gain (Input Sensitivity)

- If the input signal level is too low, adjusting the input gain to the + side allows you to use the A/D and D/A converters at the position providing the optimal resolution.
- When the input signal level exceeds the allowable input (the OVER indicator turns on), move the input gain to the – side.
- When the input signal level is high and gives a rough-sounding impression, move the input gain to the – side to give the sound a milder and clearer listening quality.
- If the OVER indicator turns on and remains on even when lowering the master volume or tone control, then change the input gain (input sensitivity) setting so that it turns off. (The input gain can be set for each input signal.)
- The input gain cannot be adjusted during Dolby Digital or DTS signal input.





Open the slide cover



1. Press the INPUT GAIN button.

The amplifier enters Input Gain Adjustment mode.

2. Turn the MULTI CONTROL jog dial to adjust the gain.

When using the remote control, use the ▲/▼ buttons to select the gain.

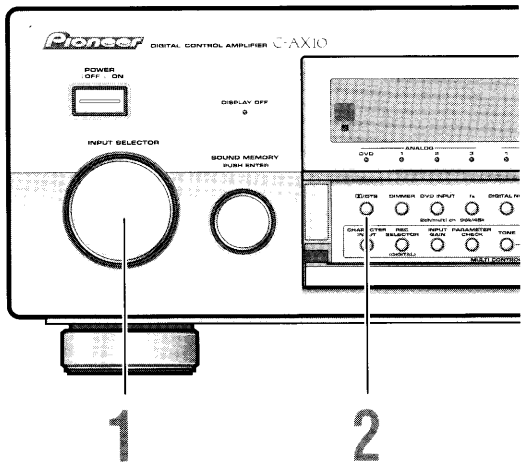
You can select from +6.0 dB, 0.0 dB, and –6.0 dB. When making this setting, make sure that the OVER indicator does not turn on.

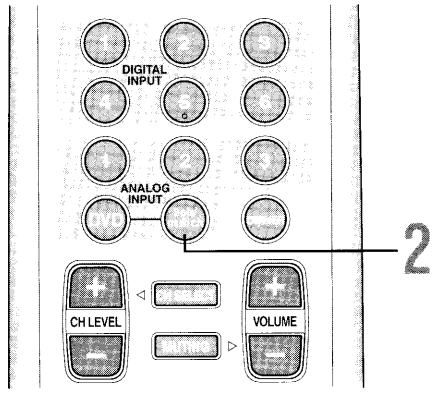
3. Press the INPUT GAIN button.

The amplifier exits Input Gain Adjustment mode.

Playing Back Dolby Digital, Dolby Pro Logic, or DTS-compatible

You can use the Dolby Digital decoder or DTS decoder built into this amplifier to play back Dolby Digital, Dolby Pro Logic, or DTS-compatible.

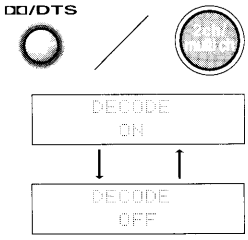




1. Use the INPUT SELECTOR to choose the playback device.

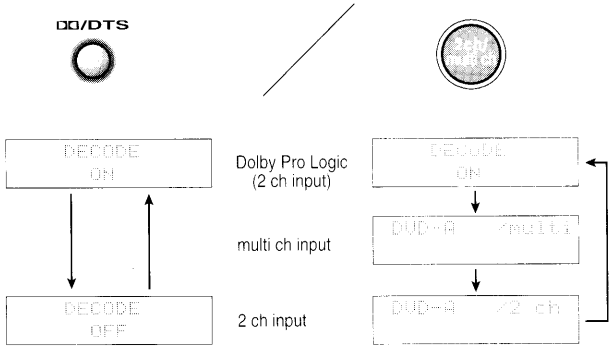
The playback device and amplifier need to be linked by a digital connection. (➡ p.16)

2. When an option other than DVD input is selected, Press the ◻◻/DTS button.



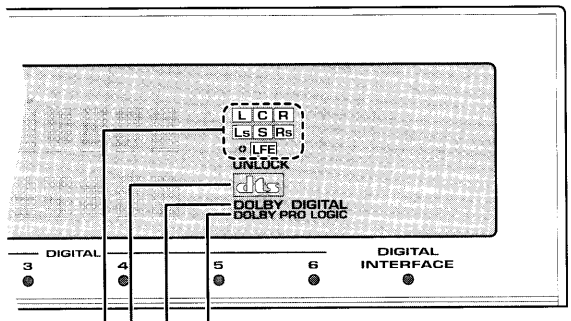
When using remote control, use the 2 ch/multi ch (◻◻/DTS) button.

- "DECODE ON" is shown on the display.
- The setting switches between DECODE ON (multi) and DECODE OFF (2 ch) each time the button is pressed.
- If Dolby Digital or DTS signals are input when this is set to DECODE OFF, the signal is down-converted and output as a front 2-channel signal.



When DVD input is selected, the setting changes from "Dolby Pro Logic", "multi ch input", and "2ch input" each time that the 2ch/multi ch(◻◻/DTS)button is pressed.

(Continued on next page)



DOLBY PRO LOGIC indicator
DOLBY DIGITAL indicator
DTS indicator
Program Format indicator

3. Play back the source.

- The input signal is automatically selected when a Dolby Digital signal or DTS signal is input.
- The DOLBY DIGITAL indicator in the front panel display turns on when a Dolby Digital signal is input. Also, the DTS indicator turns on when a DTS signal is input.
- The format indicators for the channels supporting the input signal turn on.
- The DOLBY PRO LOGIC indicator turns on when you select analogue input (2CH) with the INPUT SELECTOR or when a PCM signal is input by passing through the digital input,or when a Dolby Digital (2ch signal) is input by passing through the digital input.
- Dolby Pro Logic will not function if "multi" is selected during DVD-A input, a DVD-AUDIO signal (DV-AX10 output mode: 5.1ch) is input through a PDIF connection, the sampling frequency for digital input exceeds 48 kHz, or "PHONO" is selected for ANALOG 3 input.
- During Dolby Pro Logic operation, the sampling frequency shown on the display is 48 kHz or less.
- Dolby Pro Logic will not function if the surround speakers or centre speaker is set to NONE.
- When playing back Dolby Digital or DTS software, DIGITAL NR is automatically set to OFF.

memo

- Dialogue Normalization
  The Dialogue Normalization function (Dolby Digital standard function) automatically operates when playing back Dolby Digital software. This function automatically adjusts playback software to a fixed volume level. This function also operates for different types of software whose average volume is at different levels.
- The sound level of DTS audio recorded in CDs or music DVDs differs from that of movie discs when playing back under the same conditions.
- Some DVD players cannot output DTS signals. For details, see the operating instructions for your DVD player.

Sound Memory

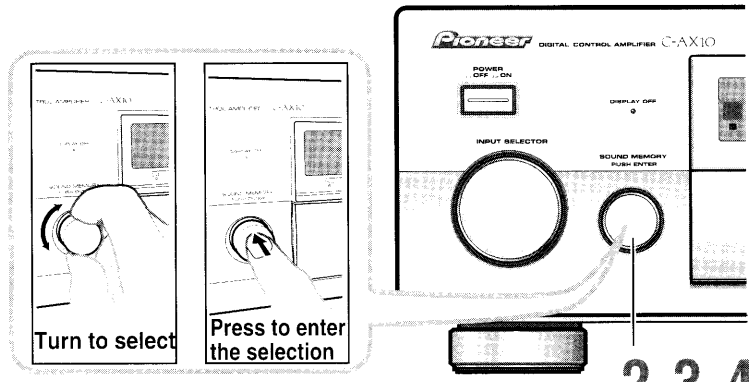
The Sound Memory function allows you to store up to 16 tone control setting patterns and 8 speaker setup patterns and recall them whenever you like.

The Sound Memory function is divided as shown below.

- **A1 to A8, B1 to B8 (16 patterns)**
  Tone control settings can be stored here. The default setting for each pattern is FLAT.
- **C1 to C8 (8 patterns)**
  Speaker setup configurations can be stored here. This includes the following items.
  - Speaker settings
  - Distance to the speakers
  - Channel level adjustment (equivalent to level adjustment using the test tone)
  - Crossover frequency setting
  - Low-cut filter on/off setting
  - LFE attenuator setting
  - Dynamic range control setting

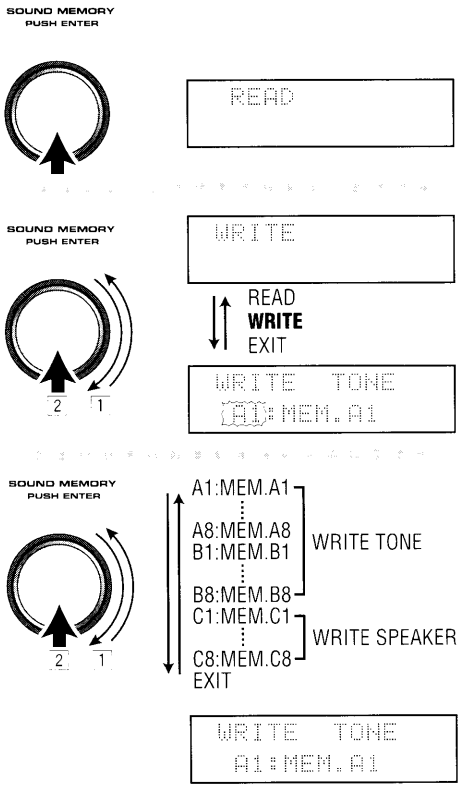
memo

You can assign any name to the Sound Memory pattern (such as MEM.A1), and then display it as a sound setting option. (➡p.66)



The tone control memory (A1 to A8 and B1 to B8) and speaker setup memory (C1 to C8) are completely independent, and so they can be recalled at the same time and combined.

■ Saving to Memory (Amplifier Unit Operation) (The operating procedure for the remote control is on the next page.)



1. Make the setting that you want to save.

Tone control ➡ p.58
Speaker setup ➡ pp.36-45

2. Press the SOUND MEMORY jog dial.

The amplifier enters Sound Memory mode.

3. Turn the SOUND MEMORY jog dial to select [WRITE], and then press the SOUND MEMORY jog dial.

The amplifier enters Sound Memory Save mode.
To exit Sound Memory mode, select [EXIT] and then press the jog dial.

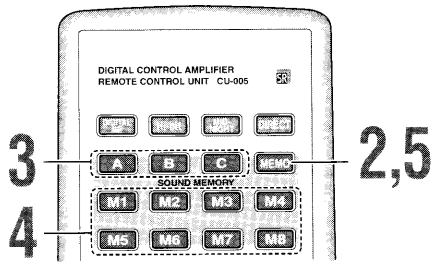
4. Turn the SOUND MEMORY jog dial to select the memory setting number where the setting will be stored (A1 to A8, B1 to B8/C1 to C8), and then press the SOUND MEMORY jog dial.

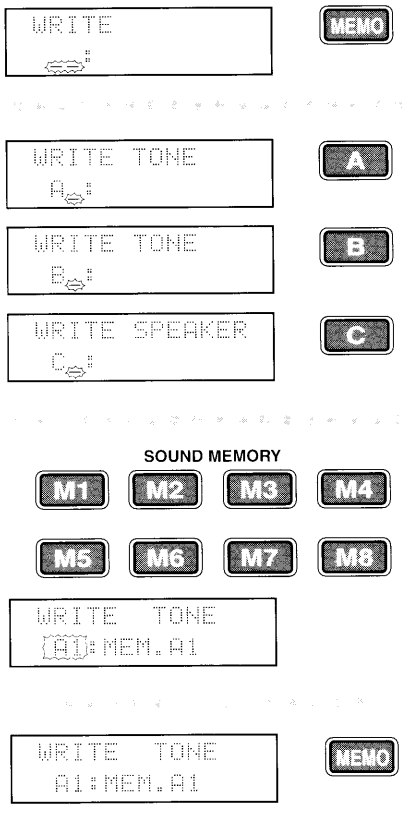
The amplifier exits Sound Memory mode after saving the setting to the selected memory number. (The amplifier returns to normal operating status after five seconds or when you press the SOUND MEMORY jog dial again.)

memo

- The amplifier exits Sound Memory mode if you do not perform any operations for 10 seconds during the sound memory setting procedure.
- Be aware that if you store a setting at a memory number that already has a setting, then the previous setting will be erased.

■Saving to Memory (Remote Control Operation) (The operating procedure for the amplifier unit is on the previous page.)





1. Make the setting that you want to save.

Tone control ➡p.58
Speaker setup ➡pp.36-45

2. Press the MEMO button.

The amplifier enters Sound Memory mode.

3. Press the A, B, or C button to select the memory group.

A=A1 to A8 (tone control setting memory)
B=B1 to B8 (tone control setting memory)
C=C1 to C8 (speaker setup memory)
The line under the memory setting number flashes, and the amplifier enters Sound Memory Save mode.

4. Press one of the M1 to M8 buttons to select the memory setting number (1 to 8).

The selected memory setting number flashes.
You can change the memory setting number while the number is flashing by pressing another button (M1 to M8).

5. Press the MEMO button when the desired memory setting number is displayed.

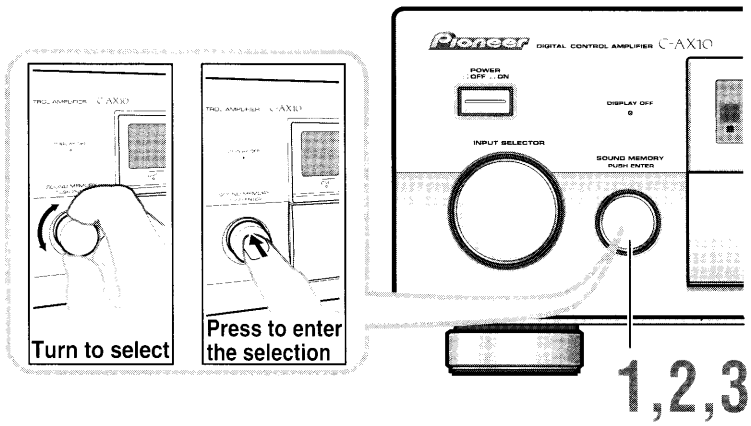
The amplifier exits Sound Memory mode after saving the setting to the selected memory number. (The amplifier returns to normal operating status after five seconds or when you press the MEMO button again.)

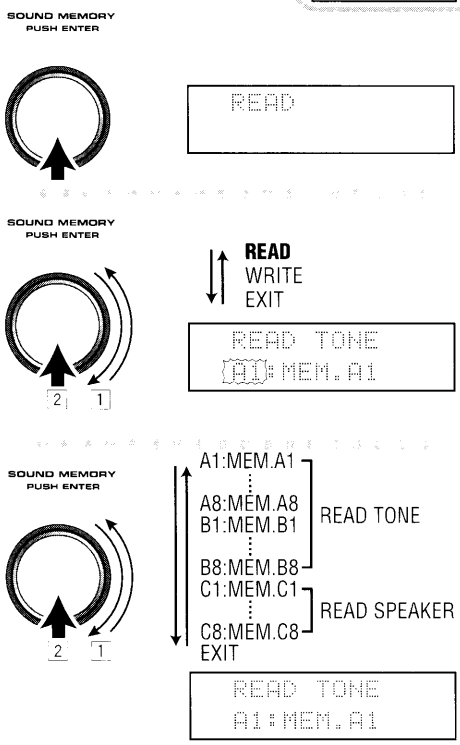
memo

- The amplifier exits Sound Memory mode if you do not perform any operations for 10 seconds during the memory setting procedure.
- Be aware that if you store a setting at a memory number that already has a setting, then the previous setting will be erased.

◆It is recommended that you make a note of the Sound Memory settings in the "Notes for Sound Memory Settings" (➡pp.86-87).

■Recalling from Memory (Amplifier Unit Operation)





1. Press the SOUND MEMORY jog dial.
The amplifier enters Sound Memory mode.

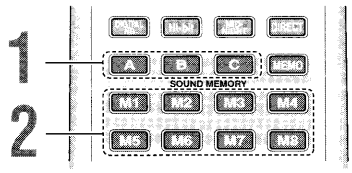
2. Turn the SOUND MEMORY jog dial to select [READ], and then press the SOUND MEMORY jog dial.
The memory setting number flashes, and the amplifier enters Sound Memory Recall mode.
To exit Sound Memory mode, select [EXIT] and then press the jog dial.

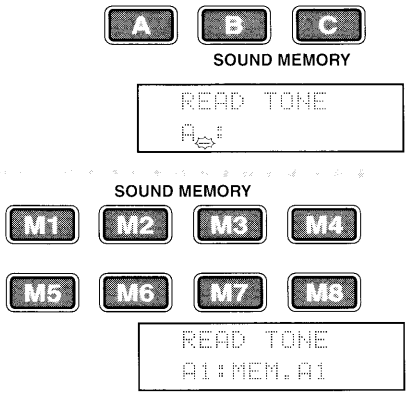
3. Turn the SOUND MEMORY jog dial to select the memory setting number that you want to recall (A1 to A8, B1 to B8/C1 to C8), and then press the SOUND MEMORY jog dial.
The amplifier exits Sound Memory mode after recalling the selected setting from memory.

memo

- The amplifier exits Sound Memory mode if you do not perform any operations for 10 seconds during the sound memory setting procedure.

■Recalling from Memory (Remote Control Operation)





1. Press the A, B, or C button to select the memory group.
The line under the memory setting number flashes, and the amplifier enters Sound Memory Recall mode.

2. Press one of the M1 to M8 buttons to select the memory setting number (1 to 8).
The amplifier exits Sound Memory mode after recalling the selected setting from memory.

memo

- The amplifier exits Sound Memory mode if you do not perform any operations for 10 seconds during the sound memory setting procedure.

Other Functions

Tone Control

You can adjust the bass (BASS), midrange (MID), and treble (TRE) settings. (See page 77.)

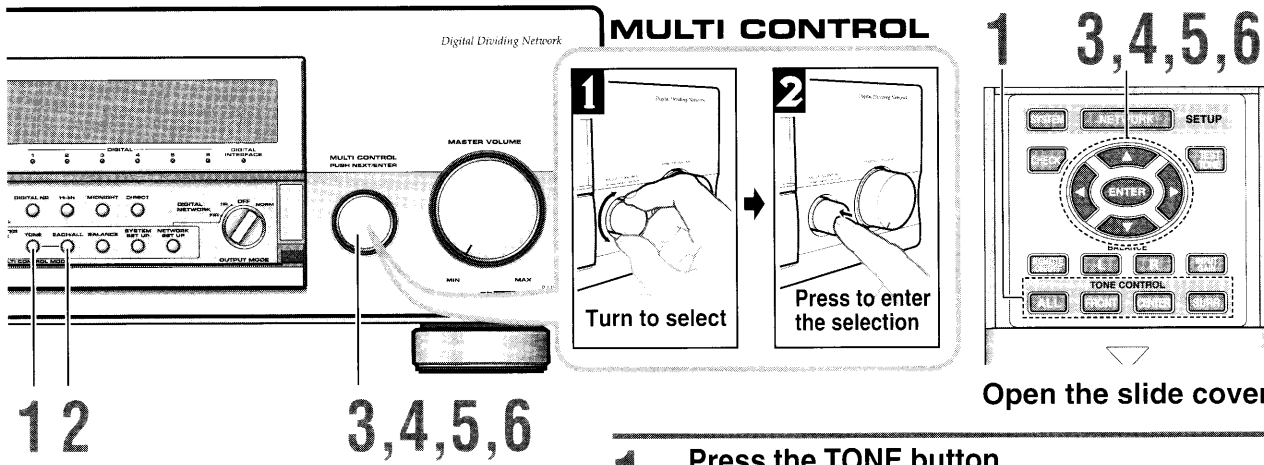
■The Tone Control function does not work when the Direct function (➡ p.62) is turned on.

■There are two types of operation modes: ALL mode and EACH mode.

ALL mode: All channels are adjusted simultaneously to the selected settings.

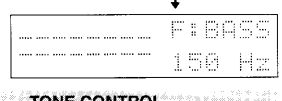
EACH mode: The front, centre, and surround channels can each be set individually. (When using the remote control, you can select the channel to be directly adjusted using the FRONT, CENTER, and SURR. buttons.)

Tone control has an extremely large number of setting options. For details, see "Table of Tone Control Operations" on page 60.



TONE

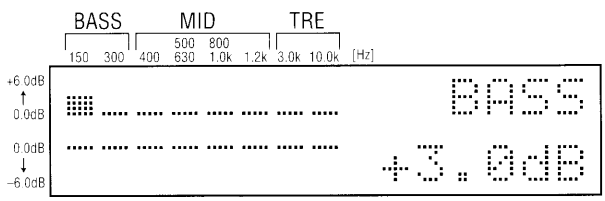
In EACH mode, the channel is displayed here (F: Front, C: Centre, S: Surround).



EACH/ALL

memo

In Tone Control mode, the frequencies and level setting for bass, midrange, and treble are displayed using a simplified graph on the character display.



1. Press the TONE button.

When using the remote control, press one of the TONE buttons (ALL, FRONT, CENTER, or SURR.).

The amplifier enters Tone Control mode.

2. Press the Tone Control Channel button (EACH /ALL) to select the operation mode.

Select either ALL mode or EACH mode .

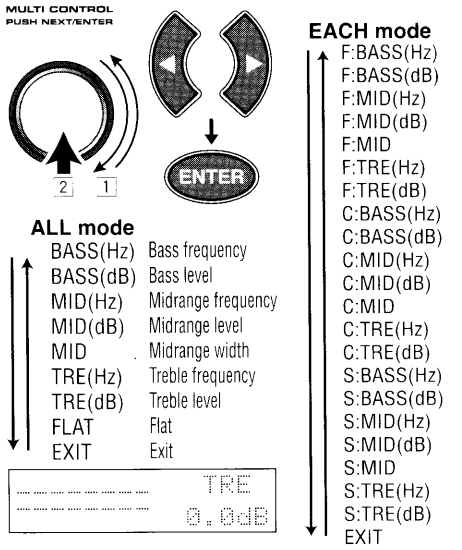
When using the remote control, the amplifier enters EACH mode if you press the FRONT, CENTER, or SURR. button in step 1. (There is no step 2 in this procedure when using the remote control.)

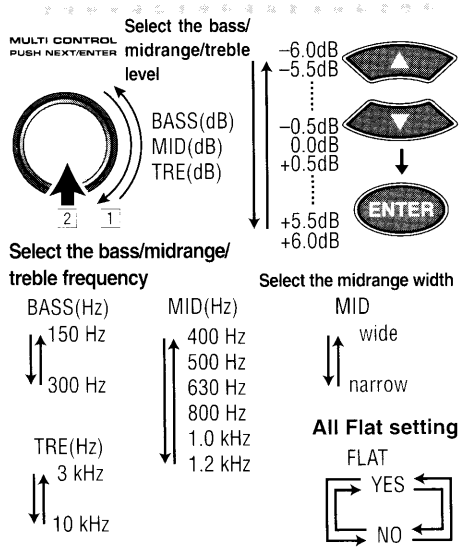
[When the Tone Control is switched from ALL mode to EACH mode]

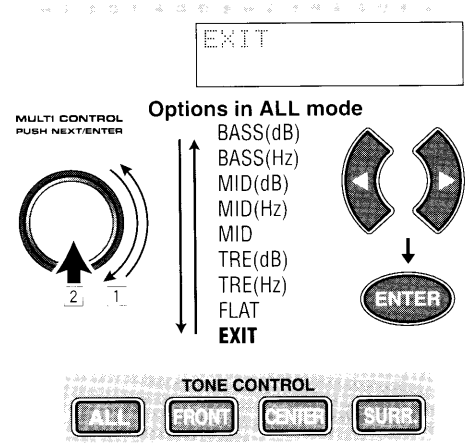
The setting in ALL mode becomes the initial setting for each channel, and you can adjust each channel from this initial setting.

[When the Tone Control is switched from EACH mode to ALL mode]

The initial value is not set (displayed as "✻✻✻✻"). When you make the adjustment, each channel (FRONT, CENTER, and SURR.) has the same setting.







3. Turn the MULTI CONTROL jog dial to select the setting option, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to select the setting option, and then press the ENTER button.

- The available setting options are bass frequency (BASS (Hz)), bass level (BASS (dB)), midrange frequency (MID (Hz)), midrange level (MID (dB)), midrange width (MID), treble frequency (TRE(Hz)), treble level (TRE(dB)), flat (FLAT), and exit (EXIT).
- In EACH mode, you can select the frequency, range level, and range width for the front (F), centre (C), and surround (S) channels.

4. Turn the MULTI CONTROL jog dial to set the frequency/level/range width, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ▲/▼ buttons to set the frequency/level/range width, and then press the ENTER button.

- For bass frequencies, you can select from 150 Hz and 300 Hz. For midrange frequencies, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, and 1.2 kHz are available. For treble frequencies, you can select from 3 kHz and 10 kHz.
- You can set the level from -6 dB to +6 dB in 0.5 -dB steps.
- The midrange width (MID) can be set to wide or narrow.
- If you select YES for the FLAT setting, the treble, midrange, and bass signals will all be flat.
- If the OVER indicator turns on, adjust the input gain setting so that the indicator turns off.

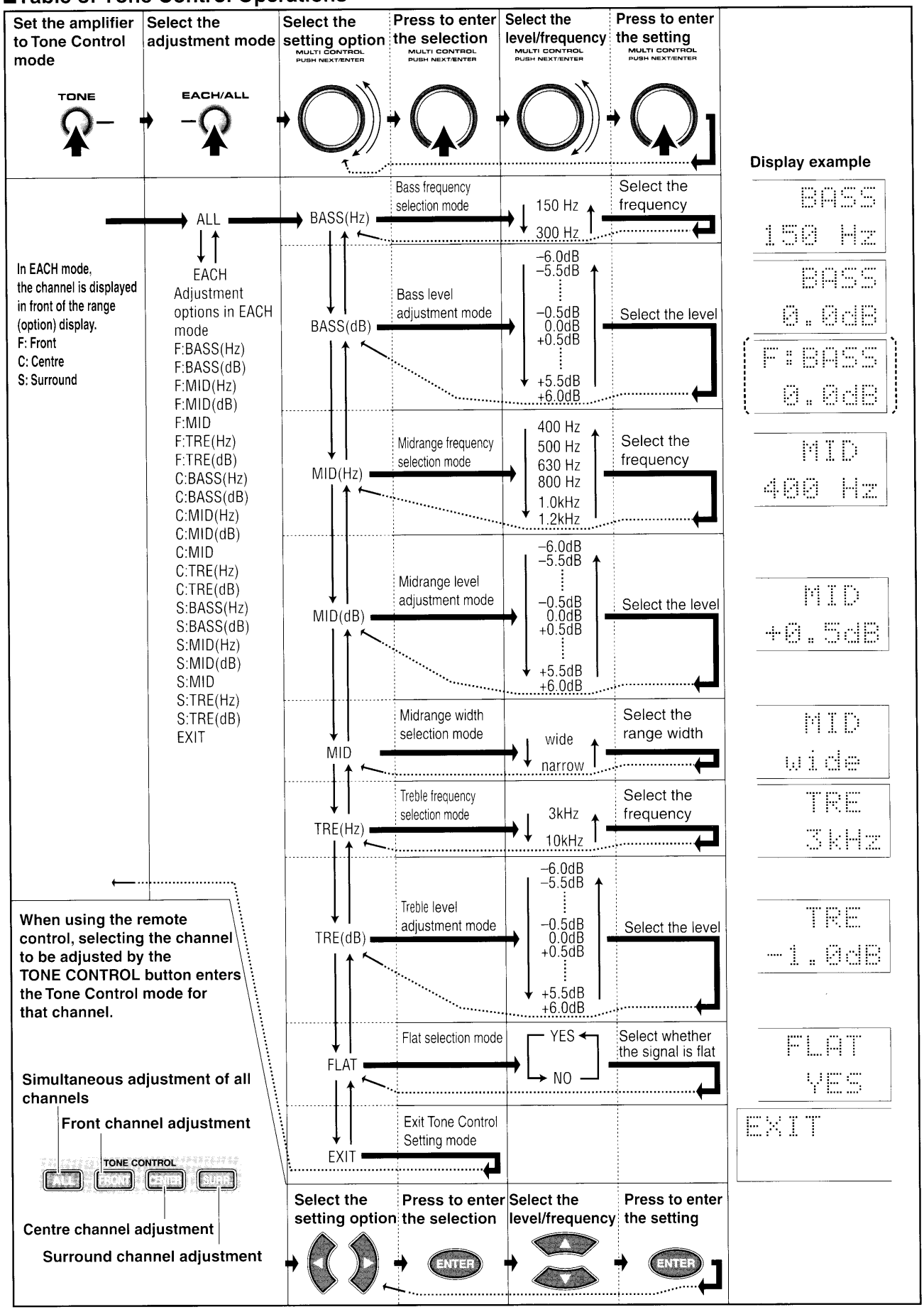
5. Repeat steps 3 and 4, and make the settings for each option.

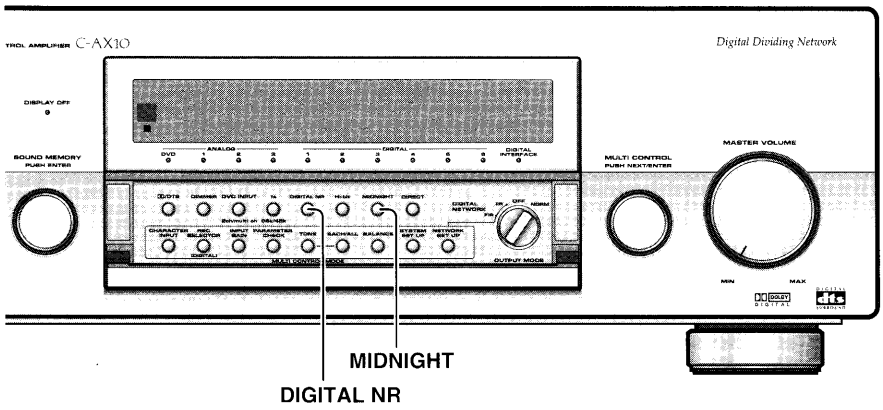
6. When you have finished making the settings, turn the MULTI CONTROL jog dial to select [EXIT], and then press the MULTI CONTROL jog dial.

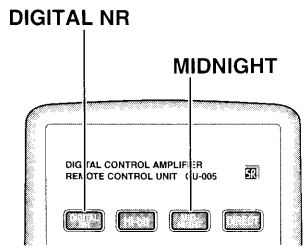
When using the remote control, use the ◄/► buttons to select [EXIT], and then press the ENTER button, or press the TONE CONTROL button for the channel being set.

The amplifier exits Tone Control mode.

■Table of Tone Control Operations





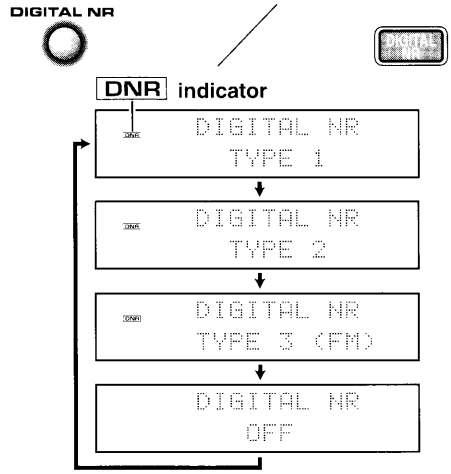


Digital NR (Noise Reduction)

The noise in music software can be reduced by turning on the Digital Noise Reduction function. (This setting can also be made for each input signal.)
There are three types of Digital Noise Reduction: TYPE 1, TYPE 2, and TYPE 3 (FM). This function can be used up to a sampling frequency of 96 kHz.

■TYPE 1: Digital input
■TYPE 2: Analogue input
■TYPE 3: FM stereo broadcasts

Although the characteristics are matched with the specific signal, listen to the different types of Digital Noise Reduction, and select the type that you think sounds best.

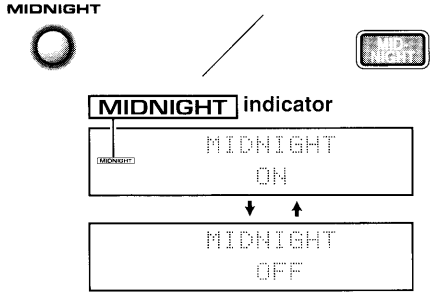


Press the DIGITAL NR button.

- The selection switches between the selections TYPE 1, TYPE 2, TYPE 3(FM), and OFF each time the button is pressed.
- The DNR indicator on the display turns on when the Digital NR function is on.
- If you do not make any operations for five seconds while making this setting, the current setting is used, and the amplifier returns to the regular display.
- The Digital NR function does not operate when the Direct function (➡ p.62) is on. When the Direct function is set to off, the Digital NR function operates according to the setting.
- The Digital NR function cannot be used together with the Midnight function (see below). When the Digital NR Function is turned on, the Midnight function is automatically turned off.
- The Digital NR function does not operate when the multichannel is used.
- The Digital NR function cannot be used together with the DD/DTS function. When the DD/DTS function is turned on, the Digital NR function automatically turns off.

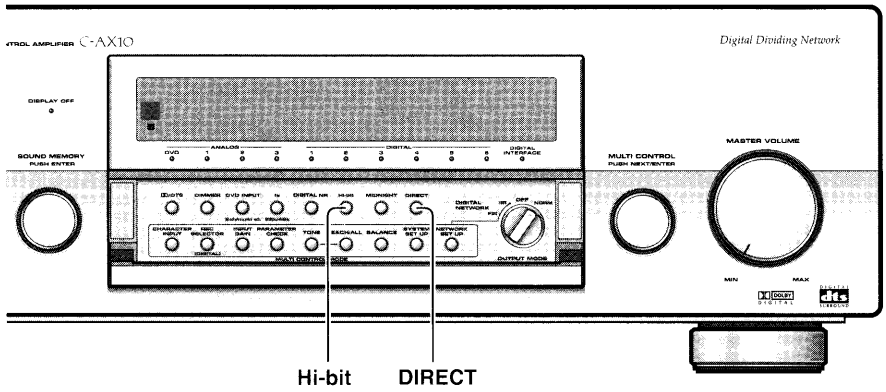
Midnight Function

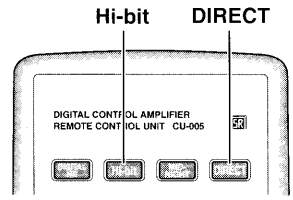
When the Midnight function is turned on, the most subtle sounds become easier to hear even at a low playback volume. (This setting can also be made for each input signal.)



Press the MIDNIGHT button.

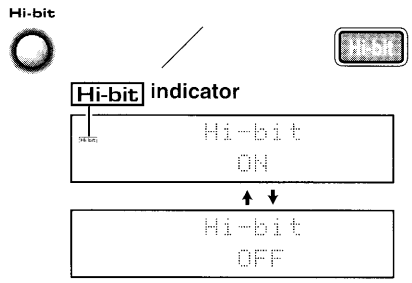
- The selection switches between ON and OFF each time the button is pressed.
- The MIDNIGHT indicator on the display turns on when the Midnight function is on.
- If you do not make any operations for five seconds while making this setting, the current setting is used, and the amplifier returns to the regular display.
- The Midnight function does not operate when the Direct function (➡ p.62) is on. When the Direct function is set to off, the Midnight function operates according to the setting.
- The Midnight function cannot be used together with the Digital NR function (see above). When the Midnight function is turned on, the Digital NR function is automatically turned off.
- The tone control setting is disabled (FLAT state) when the Midnight function is set to ON.





Hi-bit Function

This function is used to re-quantize the upper 16 bits of data for the digital input to 24 bits for expanding the dynamic range. This is particularly effective when the input signals are from CDs or other 16-bit sources. (This setting can also be made for each input signal.)
This function affects all channels when used for multichannel signals under a PDIF connection.



Press the Hi-bit button.

- The selection switches between ON and OFF each time the button is pressed.
- The Hi-bit indicator on the display turns on when the Hi-bit function is on.
- If you do not make any operations for five seconds while making this setting, the current setting is used, and the amplifier returns to the regular display.
- The Hi-bit function only operates during digital input.

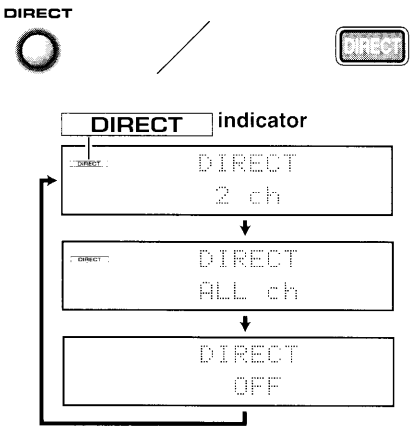
Direct Function

The Direct function has two options: DIRECT 2 ch and DIRECT ALL ch. (These settings can also be made for each input signal.)

■DIRECT 2 ch: This setting bypasses the following functions: Digital NR (➡ p.61), Midnight (➡ p.61), and tone control for the front channels (➡ p.58).

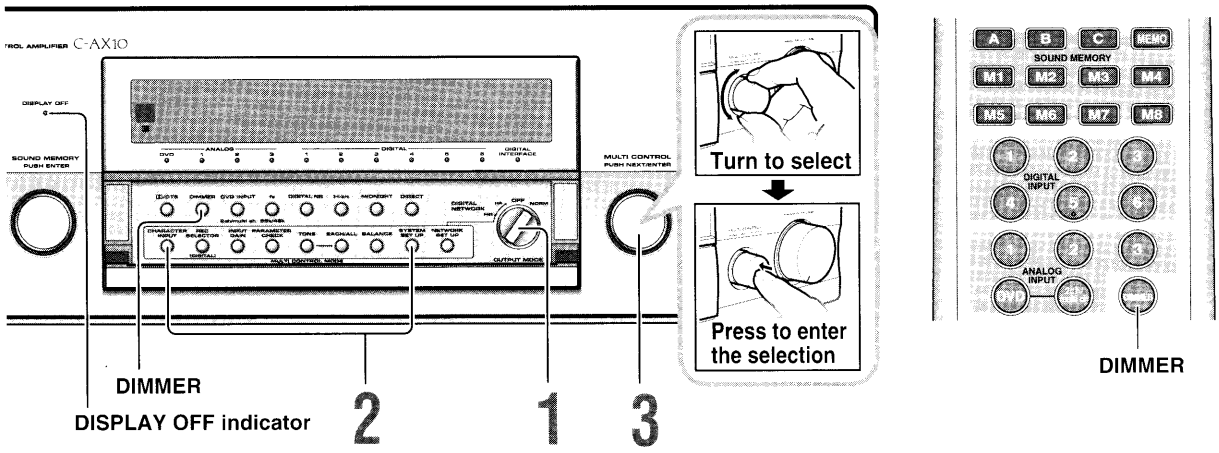
■DIRECT ALL ch: This setting bypasses the following functions: Digital NR (➡ p.61), Midnight (➡ p.61), and tone control for all output channels (➡ p.58).

When the Direct function is off, each function operates according to its setting.



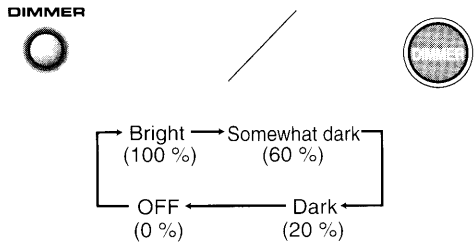
Press the DIRECT button.

- The selection switches between DIRECT 2 ch, DIRECT ALL ch, and OFF each time the button is pressed.
- The DIRECT indicator on the display turns on when the Direct function is on.
- If you do not make any operations for five seconds while making this setting, the current setting is used, and the amplifier returns to the regular display.
- The Direct function is automatically set to on when the Output mode (➡ p.25) is set to FIR.



Adjusting the Brightness of the Display (DIMMER)

The brightness of the display can be adjusted to one of four levels.

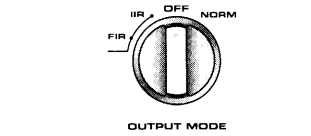


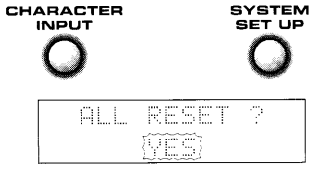
Press the DIMMER button.

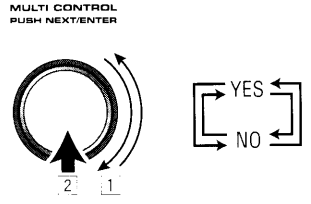
- The brightness switches between "Bright" (100%), "Somewhat dark" (60%), "Dark" (20%), and "OFF" (0%) each time the button is pressed.
- When the brightness is set to OFF, the input indicator turns off, and the DISPLAY OFF indicator on the front panel turns on.
- Even if the brightness is set to OFF, any operations that you make will immediately turn on the display, and it will turn off again after 10 seconds.

Resetting All Settings (Amplifier Unit Operation Only)

This function returns the settings for all functions (except Output mode) to the default settings (➡ p.80). If necessary, you should make a note of your settings before using this function. There is a special section for making a note of the Sound Memory settings on pages 86 and 87.







1. Set the OUTPUT MODE selector to OFF.

2. Hold down both the CHARACTER INPUT and SYSTEM SET UP buttons for two seconds.

A confirmation message is displayed.

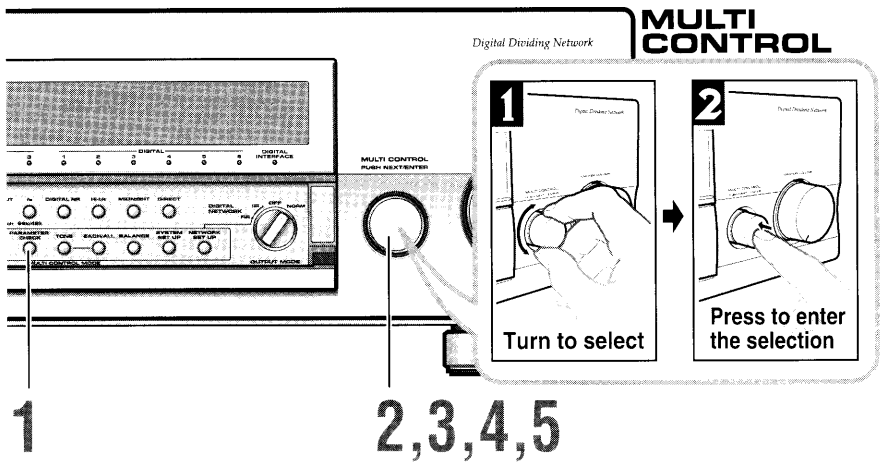
3. Turn the MULTI CONTROL jog dial to select [YES], and then press the MULTI CONTROL jog dial.

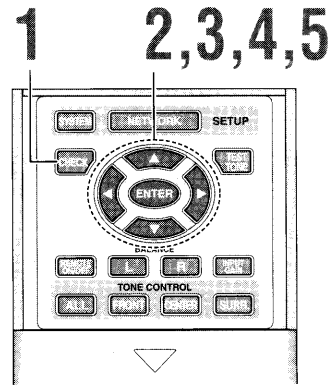
Except for the Output mode, all of the settings are reset. If you select [NO] and press the jog dial, the current setting are kept, and the amplifier returns to the normal operating status.

Checking Parameters

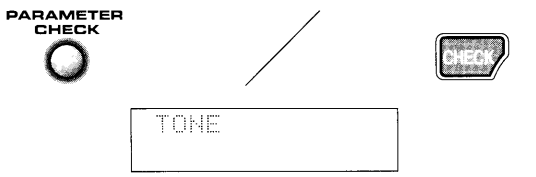
This function allows you to check (display) the current settings.

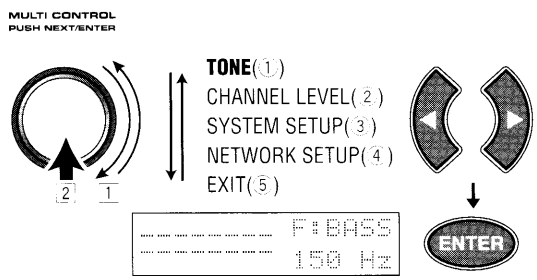
1. Tone Control settings (TONE)
2. Channel Level settings (CHANNEL LEVEL)
3. System Setup (SYSTEM SETUP)
4. Network Setup (NETWORK SETUP).....During IIR and FIR mode only

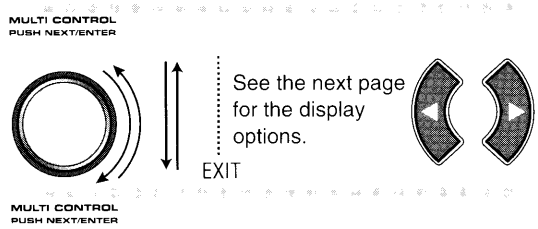


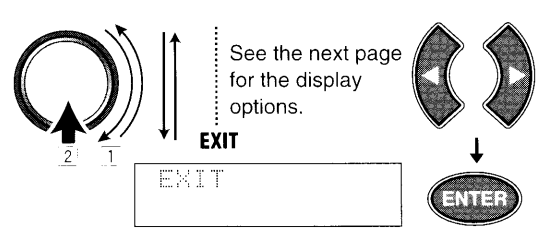


Open the slide cover









1. Press the PARAMETER CHECK button.

When using the remote control, press the CHECK button.

The amplifier enters Parameter Check mode.

2. Turn the MULTI CONTROL jog dial to select the setting that you want to display, and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to select the setting that you want to display, and then press the ENTER button.

The settings are displayed.
To exit Parameter Check mode, select [EXIT] and then press the jog dial.

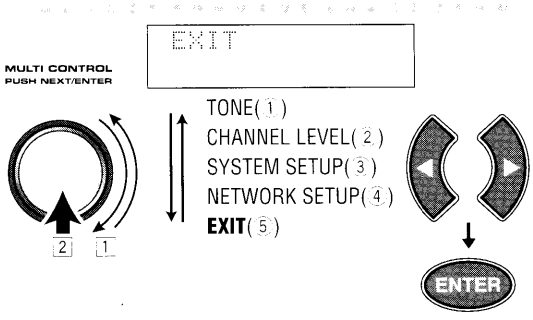
3. Turn the MULTI CONTROL jog dial to select the option that you want to display.

When using the remote control, use the ◄/► buttons to make the selection.

4. To exit the current setting display, turn the MULTI CONTROL jog dial to select [EXIT], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to select [EXIT], and then press the ENTER button.

To view other settings, return to step 2.



5. Turn the MULTI CONTROL jog dial to select [EXIT], and then press the MULTI CONTROL jog dial.

When using the remote control, use the ◄/► buttons to select [EXIT], and then press the ENTER button.

This exits Parameter Check mode.

Display Options

① TONE

The memory number is displayed in the bottom row when the Tone Control memory settings are recalled.

F.BASS(Hz) (Front bass frequency) ↔ **F.BASS(dB)** (Front bass level) ↔ **F.MID(Hz)** (Front midrange frequency) ↔ **F.MID(dB)** (Front midrange level) ↔ **F.MID** (Front midrange width) ↔ **F.TRE(Hz)** (Front treble frequency) ↔ **F.TRE(dB)** (Front treble level)

C.BASS(Hz) (Centre bass frequency) ↔ **C.BASS(dB)** (Centre bass level) ↔ **C.MID(Hz)** (Centre midrange frequency) ↔ **C.MID(dB)** (Centre midrange level) ↔ **C.MID** (Centre midrange width) ↔ **C.TRE(Hz)** (Centre treble frequency) ↔ **C.TRE(dB)** (Centre treble level)

S.BASS(Hz) (Surround bass frequency) ↔ **S.BASS(dB)** (Surround bass level) ↔ **S.MID(Hz)** (Surround midrange frequency) ↔ **S.MID(dB)** (Surround midrange level) ↔ **S.MID** (Surround midrange width) ↔ **S.TRE(Hz)** (Surround treble frequency) ↔ **S.TRE(dB)** (Surround treble level) ↔ **EXIT**

② CHANNEL LEVEL

FRONT L/R (Front balance) ↔ **SURR L/R** (Surround level) ↔ **CENTER/SW** (Centre/Subwoofer level) ↔ **EXIT**

③ SYSTEM SETUP

The memory number is displayed in the bottom row when the Speaker Setup memory settings are recalled.

SP SIZE ↔ **Settings for individual speakers** (LARGE/SMALL/NONE, ON/PLUS/OFF) ↔ **SP DISTANCE(m) (feet)** ↔ **Settings for distance to individual speakers** ↔ **ANALOG 3/D.FILTER** (LINE/PHONO/Digital filter)

LCF/CROSS (Low-cut filter setting/ Crossover frequency) ↔ **LFE ATT/DRC** (LFE attenuator setting/ Dynamic range control setting) ↔ **EXIT**

④ NETWORK SETUP

[During normal operation]

The NETWORK SETUP option is not available.

[During IIR operation]

fc(Hz) L/H (Low-range crossover frequency/ High-range crossover frequency) ↔ **SLOPE(dB/oct) L/H** (Low-range slope characteristics/ High-range slope characteristics) ↔ **LEVEL(dB) L/H** (Low-range level/ High-range level) ↔ **TIME ALIGNMENT** (Delay time setting) ↔ **PHASE** (Phase setting) ↔ **EXIT**

[During FIR operation]

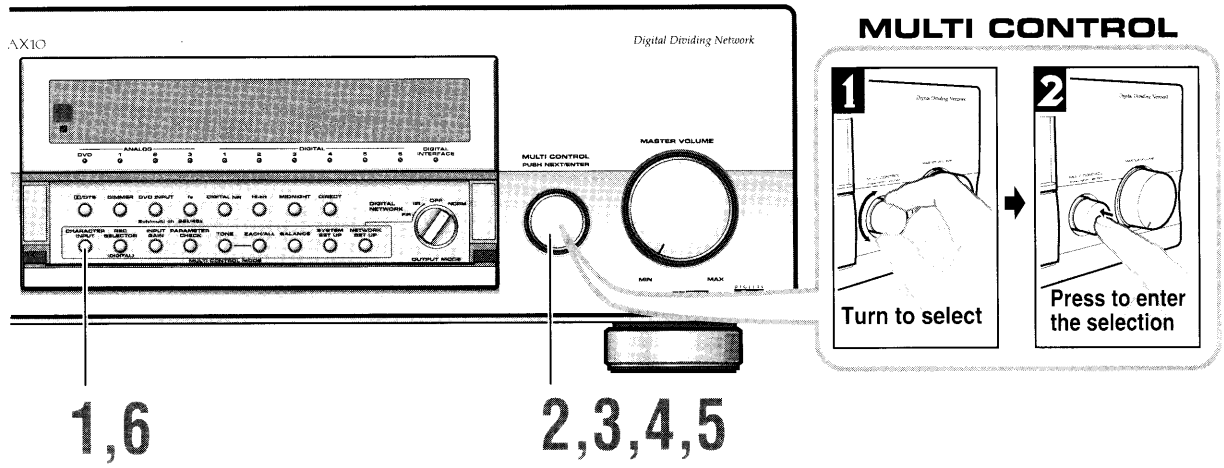
fc(Hz) (Crossover frequency) ↔ **LEVEL(dB) L/H** (Low-range level/ High-range level) ↔ **TIME ALIGNMENT** (Delay time setting) ↔ **PHASE** (Phase setting) ↔ **EXIT**

⑤ EXIT

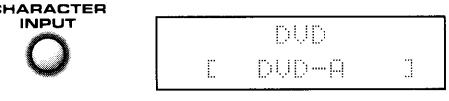
Select this option to exit Parameter Check mode.

Character Input

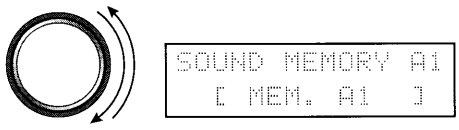
You can assign a name up to eight characters to the input selector settings and sound memory settings and display them on the display.



CHARACTER INPUT



MULTI CONTROL PUSH NEXT/ENTER



1. Press the CHARACTER INPUT button.

The amplifier enters Character Input mode.

2. Turn the MULTI CONTROL jog dial to select the input signal or sound memory setting that you want to name.

You can select the sound memory setting after selecting the input signal.

You can select the following settings.

1. DVD[DVD-A]
2. ANALOG 1 [ANALOG 1]
3. ANALOG 2 [ANALOG 2]
4. ANALOG 3 [ANALOG 3]
5. DIGITAL 1 [DIGITAL 1]
6. DIGITAL 2 [DIGITAL 2]
7. DIGITAL 3 [DIGITAL 3]
8. DIGITAL 4 [DIGITAL 4]
9. DIGITAL 5 [DIGITAL 5]
10. DIGITAL 6 [DIGITAL 6]
11. SOUND MEMORY A1 [MEM. A1]
12. SOUND MEMORY A2 [MEM. A2]
13. SOUND MEMORY A3 [MEM. A3]
14. SOUND MEMORY A4 [MEM. A4]
15. SOUND MEMORY A5 [MEM. A5]
16. SOUND MEMORY A6 [MEM. A6]
17. SOUND MEMORY A7 [MEM. A7]
18. SOUND MEMORY A8 [MEM. A8]
19. SOUND MEMORY B1 [MEM. B1]
20. SOUND MEMORY B2 [MEM. B2]
21. SOUND MEMORY B3 [MEM. B3]
22. SOUND MEMORY B4 [MEM. B4]
23. SOUND MEMORY B5 [MEM. B5]
24. SOUND MEMORY B6 [MEM. B6]
25. SOUND MEMORY B7 [MEM. B7]
26. SOUND MEMORY B8 [MEM. B8]
27. SOUND MEMORY C1 [MEM. C1]
28. SOUND MEMORY C2 [MEM. C2]
29. SOUND MEMORY C3 [MEM. C3]
30. SOUND MEMORY C4 [MEM. C4]
31. SOUND MEMORY C5 [MEM. C5]
32. SOUND MEMORY C6 [MEM. C6]
33. SOUND MEMORY C7 [MEM. C7]
34. SOUND MEMORY C8 [MEM. C8]

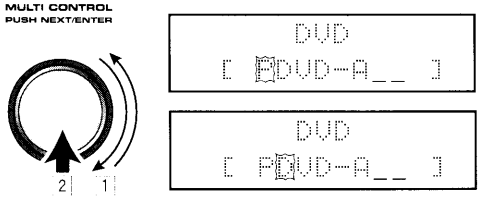
Fig. 1

Input Example: Changing the setting [DVD-A] to [Pioneer]

MULTI CONTROL PUSH NEXT/ENTER

3. (After selecting DVD) Press the MULTI CONTROL jog dial.

The first character flashes.
Spaces are indicated by an underline.

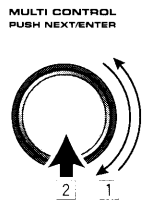


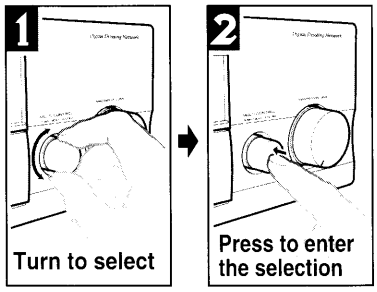
4. Turn the MULTI CONTROL jog dial to select the character (P), and then press the MULTI CONTROL jog dial.

The second character flashes.

You can select the alphanumeric characters and symbols shown below for the name.

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z						
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z						
Alphabet	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z						
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z						
Numbers	0	1	2	3	4	5	6	7	8	9																						
	0	1	2	3	4	5	6	7	8	9																						
Symbols	!	"	#	$	%	&	'	(	)	*	+	,	−	.	/	:	;	<	=	>	?	@	[	\	]	^	_	`	{	|	}	~	°	Space
	!	"	#	$	%	&	'	(	)	*	+	,	−	.	/	:	;	<	=	>	?	@	[	\	]	^	_	`	{	|	}	~	°	





5. Using the same procedure in step 4, turn the MULTI CONTROL jog dial to select the character, and then press the MULTI CONTROL jog dial to enter the second to eighth characters (i, o, n, e, e, r)

	Turn to select	Press to enter the selection (go to next character)
2nd character (i)	DVD [PIVD-A__]	DVD [PiDD-A__]
3rd character (o)	DVD [PiDD-A__]	DVD [PioD-A__]
4th character (n)	DVD [PioD-A__]	DVD [PionA__]
5th character (e)	DVD [PionA__]	DVD [Pione__]
6th character (e)	DVD [Pione__]	DVD [Pioneer_]
7th character (r)	DVD [Pioneer_]	DVD [Pioneer]
8th character ( )	DVD [Pioneer]	DVD [Pioneer]

Character input finishes after you enter the eighth character. To enter another name, continue from step 2 of the above procedure.

6. Press the CHARACTER INPUT button.

The amplifier exits Character Input mode.

Table of Function Combinations

This amplifier is provided with a wide range of functions. However, some of these functions cannot operate while other functions are operating. For more details about functions that are incompatible with each other, refer to the respective function description page and to the tables below.

NETWORK SETUP (Pages 22-33)

OUTPUT MODE	NORM	IIR	FIR
NETWORK SET UP	×	○	○

SYSTEM SETUP

LEGATO LINK (Page 45)

INPUT	PDIF(176.4kHz, 192kHz)	Other settings
LEGATO LINK	×	○

DVD 2 ch/multi ch (Page 46)

INPUT	DVD-A	Other settings
DVD 2 ch/multi ch	○*1	×

*1: When the setting is changed from 2 ch to multi, the Digital NR function automatically is turned off.

fs 96k/48k (fs=Sampling frequency) (Page 48)

INPUT	Analogue input ANALOG 1 to 3 (LINE) ANALOG 3 (PHONO) DVD-A (2 ch)		Digital input DIGITAL 1 to 6 PDIF (2-channel sampling frequency: 96 kHz or less) PDIF (Sampling frequency: 176.4 kHz, 192 kHz) PDIF (Multichannel signal) Analogue input DVD-A (multi)
	REC SELECTOR : SOURCE	REC SELECTOR : Except SOURCE	
fs 96k/48k	○	×	×

TONE CONTROL (Pages 58-60)

OUTPUT MODE		NORM, IIR			FIR	
		DIRECT : 2 ch	DIRECT : all	DIRECT : OFF	DIRECT : 2 ch	DIRECT : all
TONE CONTROL	Front	○*2	○*2	○*3	○*2	○*2
	Centre Surround	○	○*2	○*3	○	○*2

*2 The setting can be made, but it does not function.

*3 The tone control setting is disabled (FLAT state) when the Midnight function is set to ON.

SOUND MEMORY (Pages 55-57)

A1 to A8, B1 to B8

OUTPUT MODE		NORM, IIR			FIR	
		DIRECT : 2 ch	DIRECT : all	DIRECT : OFF	DIRECT : 2 ch	DIRECT : all
SOUND MEMORY A1 to B8	Front	○*4	○*4	○	○*4	○*4
	Centre Surround	○	○*4	○	○	○*4

*4 : The setting can be made and recalled, but the Tone Control function does not function.

DIGITAL NR (Page 61)

INPUT	Multichannel input DVD-A (multi) PDIF (Multichannel signal) PDIF (Sampling frequency: 176.4 kHz, 192 kHz) DIGITAL 1 to 6 (Dolby Digital and DTS signals) During Pro Logic operation	2-channel (Sampling frequency: 96 kHz or less) input ANALOG 1 to 3 (LINE) ANALOG 3 (PHONO) DVD-A (2 ch) DIGITAL 1 to 6 (PCM signal) PDIF (2-channel sampling frequency: 96 kHz or less)	
		DIRECT : 2ch, all or DECODE: ON	DIRECT : OFF and DECODE :OFF
DIGITAL NR	×	×	○*5

*5:The Midnight function is automatically turned off.

● During operation in FIR mode, the Direct function is automatically turned on.

MIDNIGHT (Page 61)

INPUT	PDIF (Sampling frequency: 176.4 kHz, 192 kHz) input	Multichannel input DVD-A (multi) PDIF (Multichannel signal)		2-channel (Sampling frequency: 96 kHz or less) input ANALOG 1 to 3 (LINE) ANALOG 3 (PHONO) DVD-A (2 ch) DIGITAL 1 to 6 PDIF (2-channel sampling frequency: 96 kHz or less)	
		DIRECT : 2ch, all	DIRECT : OFF	DIRECT : 2ch, all	DIRECT : OFF
MIDNIGHT	×	×	○	×	○*6

*6:The Digital NR function is automatically turned off.

● During operation in FIR mode, the Direct function is automatically turned on.

Hi-bit (Page 62)

INPUT	Analogue input ANALOG 1 to 3 (LINE) ANALOG 3 (PHONO) DVD-A (2 ch) DVD-A (multi) PDIF (Sampling frequency: 176.4 kHz, 192 kHz)	Digital input DIGITAL 1 to 6 PDIF (2-channel sampling frequency: 96 kHz or less) PDIF (Multichannel signal)
Hi-bit	×	○

DIRECT (Page 62)

OUTPUT MODE		NORM, IIR	FIR
DIRECT	OFF	○	×
	2ch	○*7	○*7
	all	○*8	○*8

*7 : The Midnight, Digital NR, and front-channel Tone Control functions are bypassed.

*8 : The Midnight, Digital NR, and Tone Control functions are bypassed.

SUB WOOFER PLUS (Page 36)

INPUT	Multichannel input DVD-A (multi) PDIF (Multichannel signal) DIGITAL 1 to 6 (Dolby Digital and DTS signals) During Pro Logic Operation	2-channel input ANALOG 1 to 3 (LINE) ANALOG 3 (PHONO) DVD-A (2 ch) DIGITAL 1 to 6 (PCM signal) PDIF (2-channel sampling frequency: 96 kHz or less) PDIF (Sampling frequency: 176.4 kHz, 192 kHz)
SUB WOOFER PLUS	○	×

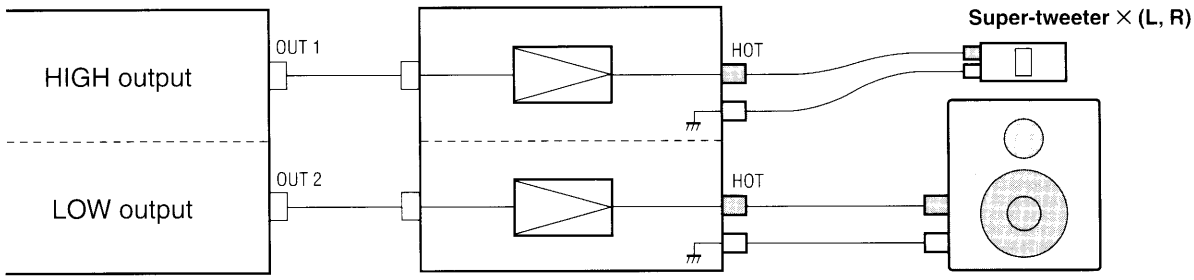
Options marked by "×" indicate that when you try to use that function, no operations can be performed. (To enable operation again, change the setting.)

Advanced Techniques •••• Various Connection Methods

The two front output lines (HIGH/LOW) on this amplifier can be used not only as a regular channel divider, but also for a wide variety of connection applications.

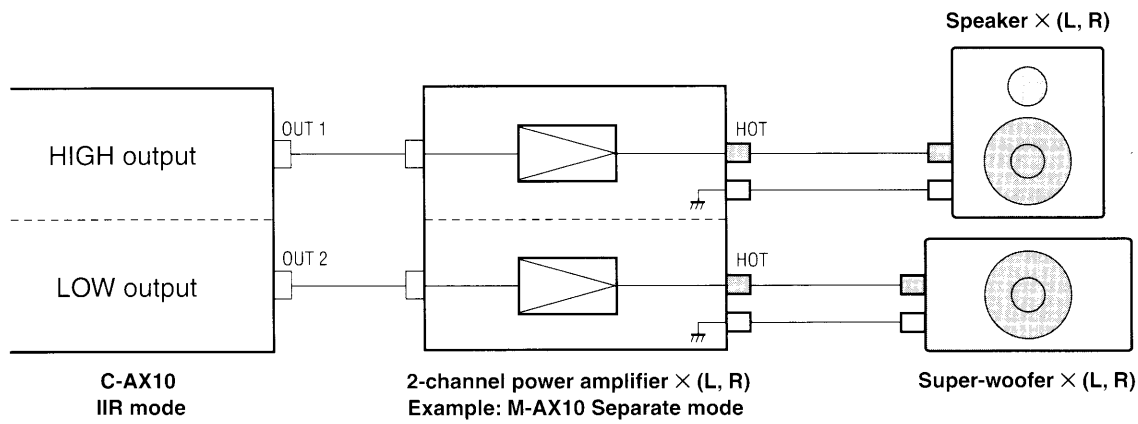
1. Adding super-tweeters

In IIR mode, setting the crossover frequency to a high setting allows the Channel Divider function to be used to separate the ranges between the super-tweeters and front speakers.
Also, the Time Alignment function can be used to assign a delay of up to 8 msec (approx. 2.7 m/10.6 in.).
The use of these functions can give you a wider selection for making your speaker settings.



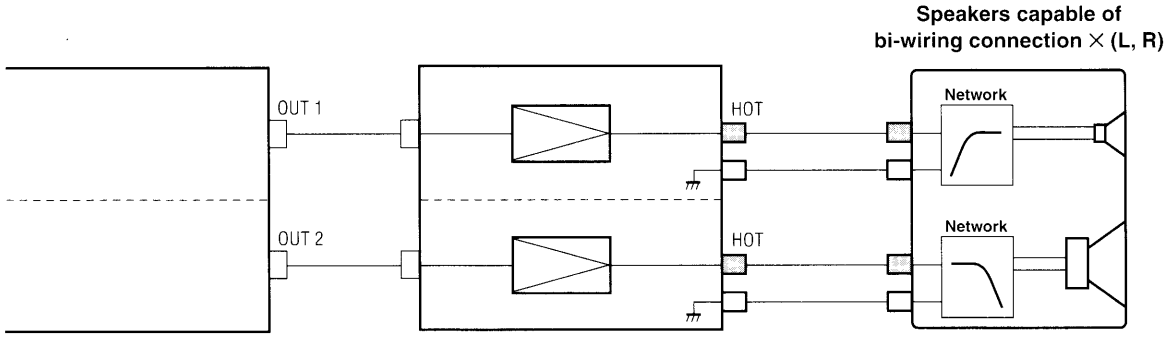
2. Adding super-woofers

In IIR mode, setting the crossover frequency to a low setting allows the Channel Divider function to be used to separate the ranges between the super-woofers and front speakers.
Independent super-woofers can be added to both channels and placed near the listening position so that you obtain full-sounding bass without emitting a high volume using large-output amplifiers or high-performance speakers. In this case, if you use the Time Alignment function to align the equivalent positions of the front speakers and super-woofers, you can deliver full bass with the sound image aligned at the listening position.



3. Making the ideal parallel drive connection

Combining speakers with bi-wiring input jacks and a four-channel power amplifier results in an ideal parallel drive connection.
Since the OUT 1 (HIGH) and OUT 2 (LOW) jacks output the same signal (four D/A converter parallel connections) in Normal mode, connecting each output to each bi-wiring input jack after passing through the power amplifier allows you to easily enjoy your music with a fully-independent parallel drive connection.

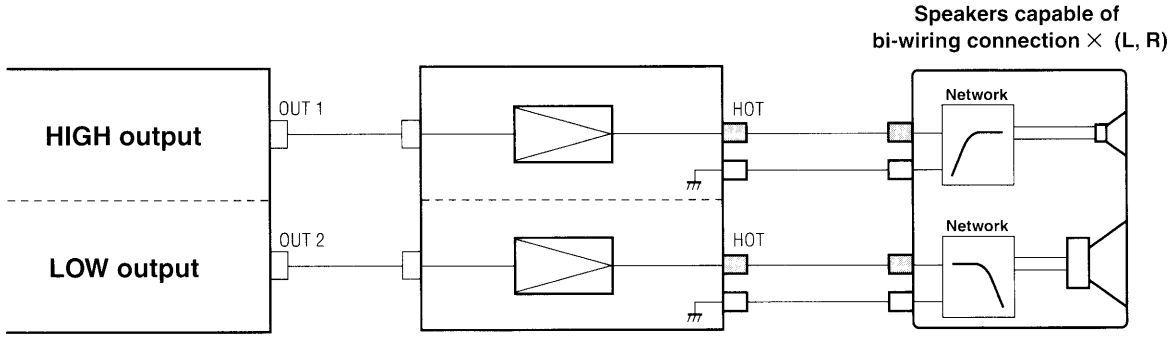


C-AX10
Normal mode

2-channel power amplifier × (L, R)
Example: M-AX10 Separate mode

4. Time alignment adjustment when combining with a speaker with built-in network

You can use the Time Alignment function in speakers that have a bi-wiring input jack, even if the network is built into the speaker.
If the slope is set to 0 dB/oct in IIR mode, the same signal is output to the high-range output OUT 1 (HIGH) and low-range output OUT 2 (LOW) jacks. If you adjust the time alignment in this state, the high-range output OUT 1 (HIGH) will have a slight time difference from the low-range output OUT 2 (LOW), and the difference in the speaker distances can be corrected.

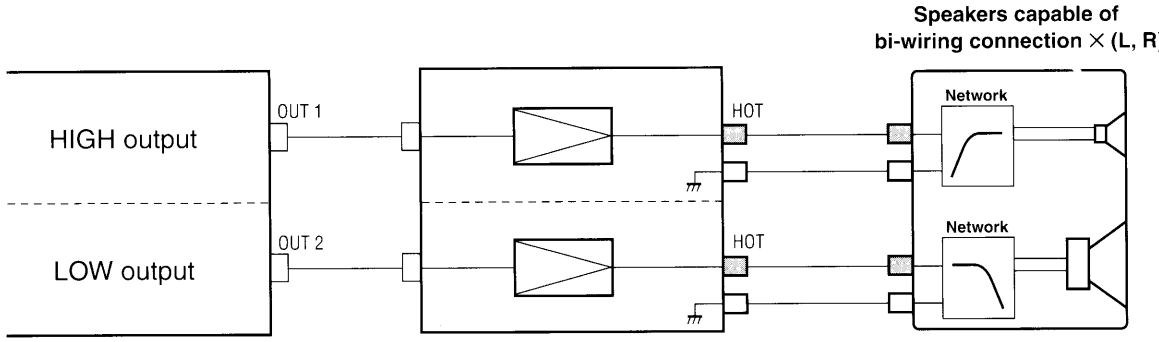


C-AX10
IIR mode
- **Slopes are set to 0 dB/oct**
- **Time Alignment adjustment**

2-channel power amplifier × (L, R)
Example: M-AX10 Separate mode

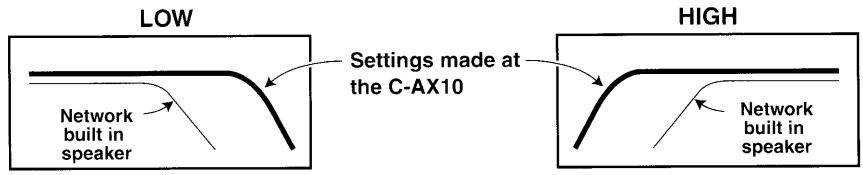
5. Combining the Channel Divider function with a speaker with built-in network

You can use the IIR Channel Divider function with speakers that have a bi-wiring input jack, even if the network is built into the speaker.
In the built-in network, the characteristics near the crossover frequency are set so that the transition is smooth between different speakers. The sound quality often becomes unnatural if you add a network using the amplifier near the crossover frequency. However, if you set the low-range crossover frequency at a value considerably higher than the built-in network (such as 20 kHz) and set the high-range crossover frequency lower (such as 70 Hz), there is hardly any effect near the crossover frequency. This allows you to enjoy sound quality without unnecessary input to each speaker unit.



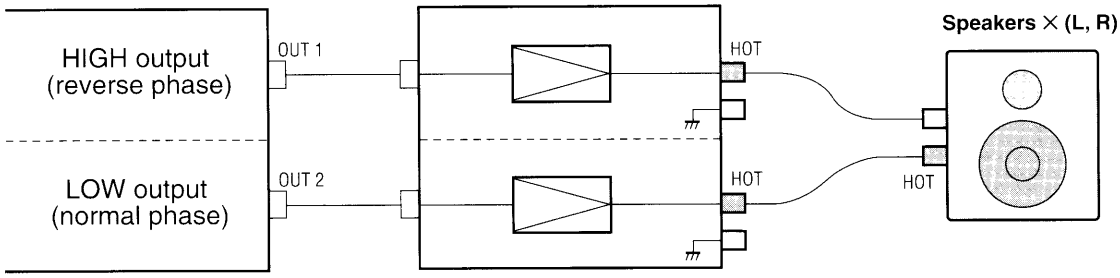
C-AX10
IIR mode

2-channel power amplifier × (L, R)
Example: M-AX10 Separate mode



6. Connection for using a stereo power amplifier as a monaural bridge drive amplifier

If the low-range and high-range slopes are set to 0 dB/oct and the phase is set to reverse phase (180°) in IIR mode, the high-range output (HIGH) is shifted by 180° with respect to the low-range output (LOW).
Connecting these outputs to the stereo power amplifier and connecting the HOT sides of each output to the speakers makes a bridge connection, and the stereo power amplifier can be used as a monaural bridge drive amplifier with approximately twice the output.



C-AX10
IIR mode
- **Slopes are set to 0 dB/oct**
- **HIGH phase is 180°**

Stereo power amplifier × (L, R)
Example: M-AX10 Separate mode

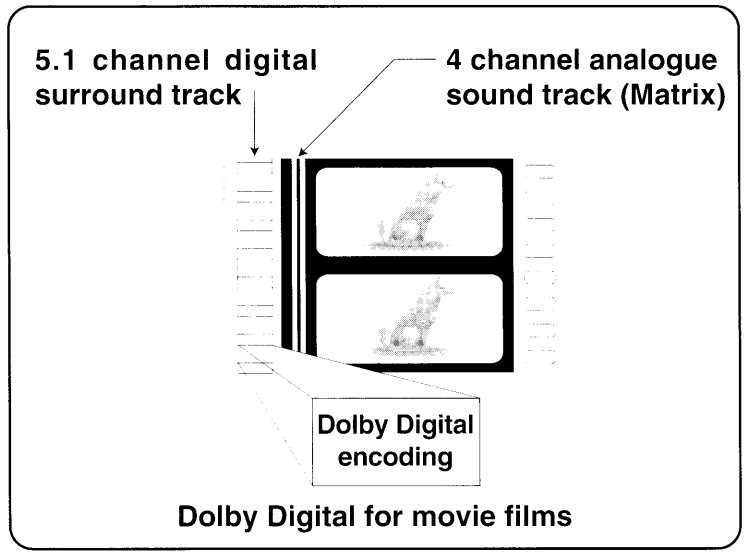
CAUTION:
Before making any of these connections, first check the operating instructions for the speakers and power amplifiers that you are using to make sure that there are no problems with making these connections.

Techno Tidbits

■ Dolby Digital

Dolby Digital is a compression format which records the sound of 6 channels of the theater surround system (Dolby Digital) on the movie film digital track. Of the 6 channels, the subwoofer channel is intended for bass only, and because the frequency range is smaller than the main channel, it is expressed as 5.1 channels.

Dolby Digital is the name of the Dolby surround multi-channel digital system that was developed after the Dolby Surround System and Dolby Pro Logic System.

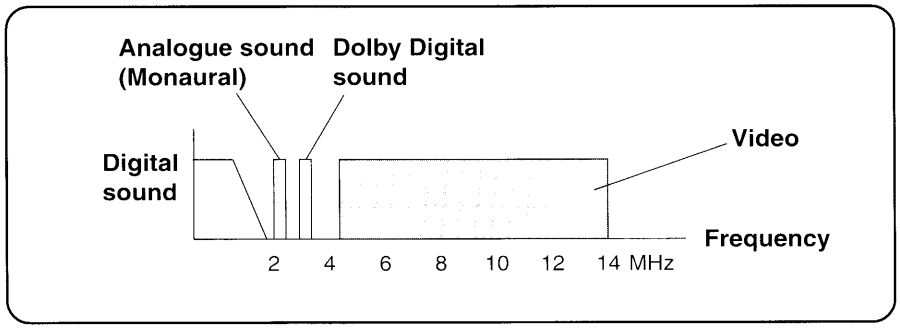


Dolby Digital for movie films

The number of movies made using Dolby Digital since 1992 has exceeded 300 and continues to increase. For compact disc players and laser disc digital sounds, 16 bits are used to sample the original analogue audio waveform and sampling is carried out 44.100 times every second. However, because an enormous amount of recording signal data is required for the multichannel system with this method, AC-3 is used to compress the data.
In reproducing audio signals, the smaller the bit number used, the lower the sound quality. With AC-3, drop in auditory sound quality is prevented by using masking technology and digital filtering technology based on the human auditory characteristics.

Laser disc format

Laser discs are now available on the market in large numbers. This means that the recording of different format audio signals on the laser disc raises the important question of compatibility with existing laser discs. Dolby Digital tracks on Laser discs record signals using the space of one analogue audio channel so it will maintain compatibility with existing discs and players.
As shown in the following figure, the digital audio sound of Dolby Digital discs can be played back as currently done. Analogue sounds are played back by using the other channel without the Dolby digital signals for monaural audio signals.



Comparison with Dolby Pro Logic Surround

Dolby Digital is also known as the 5.1 channel system. It is equipped with 5 channels (front left, front right, centre, surround left, surround right) in the frequency range from 20 Hz to 20 kHz and an independent Low Frequency Effect (LFE) channel. The subwoofer channel can be used as desired to enjoy strong bass sounds. The table on the next page shows a comparison with Dolby Pro Logic Surround effects.

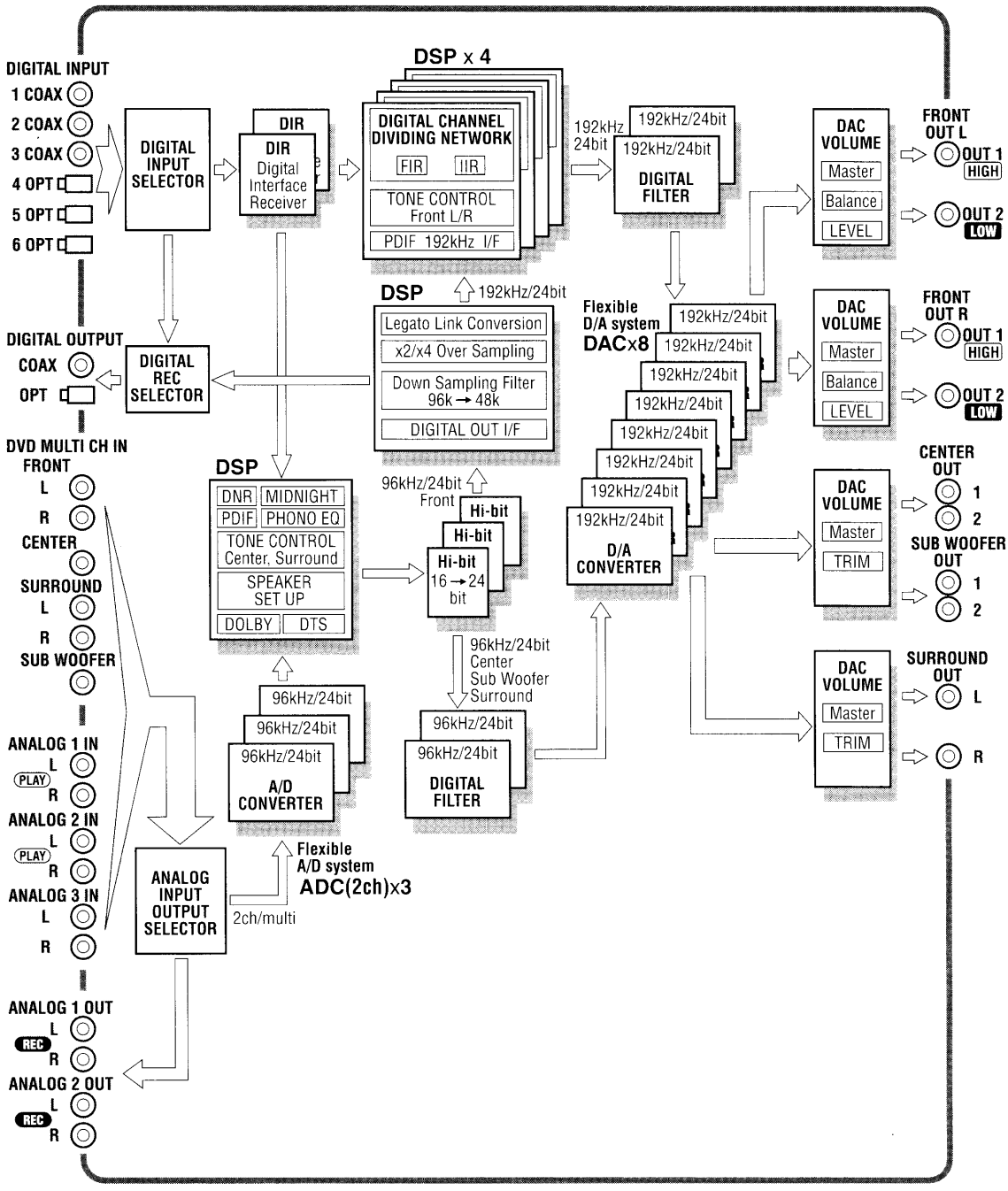
■ DTS

DTS has been adopted as a sound recording format in the latest movie theaters since the release of "JURASSIC PARK" in 1993, and has a good reputation for high quality sound and dynamic surround effects.
In this system, 6 channels of digital sound are recorded on CD-ROM, rather than on the film. DTS adopts a simultaneous playback format. With a low rate of compression of sound signals and a high rate of transmittance, a higher sound quality format is produced. Also, unlike the process of recording digital sounds on film directly, the only components required are a CD-ROM drive as might be used with a personal computer and a DTS processor, and therefore less investment is required than other formats. For this reason, the format is being introduced in more and more movie theaters and is being adopted in home movie software (DVD,LD) and music software (5.1 channel CD).
More than 11,000 movie theaters around the world have adopted the DTS format, which is now the most popular digital format for movie theaters especially in the U.S.A., Europe, and Asia.

	Dolby Digital	**DTS**	**Dolby Pro Logic Surround**
No. of recorded channels	5.1 channels (Max.)	6 channels (Max.)	2 channels
No. of playback channels	5.1 channels (Max.)	6 channels (Max.)	4 channels
Playback channel structure	Front Left, Front Right, Centre, Surround Left, Surround Right, Subwoofer	Front Left, Front Right, Centre, Surround Left, Surround Right, Subwoofer	Front Left, Front Right, Centre, Surround
Sound processing	Digital discrete processing	Digital discrete processing	Analogue matrix processing
Rear (Surround) high frequency playback limit	20,000 Hz	20,000 Hz	7,000 Hz
Other	• 5.1 completely independent channels • High dynamic range • Stable position, high phase characteristics, and advanced surround effects reproduction • High efficiency (Compression rate of about one-tenth)	• 6 completely independent channels • High dynamic range • Stable position, high phase characteristics, and advanced surround effects reproduction • Low compression rate (about one-fourth), high quality sound	

Technical Documentation

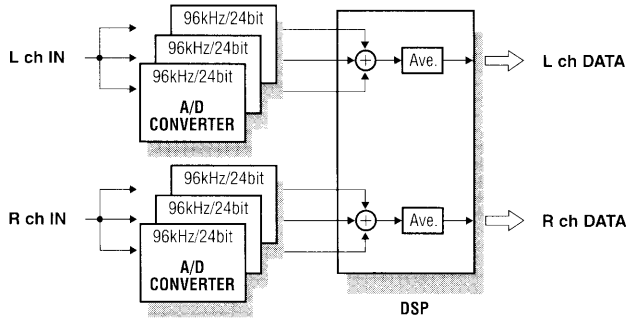
■ Block Diagram



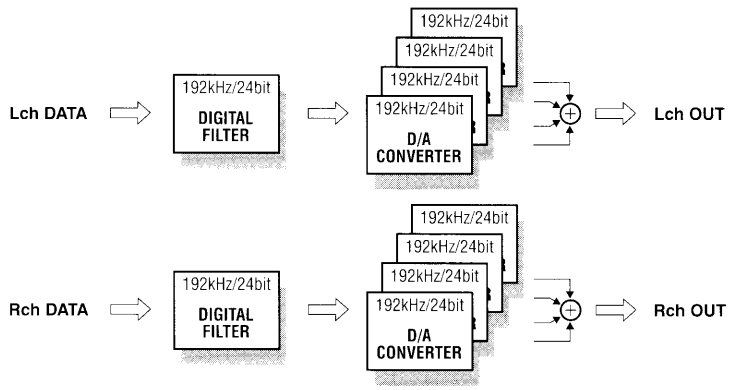
■ Flexible A/D-D/A System

The purpose of this system is to improve the performance and sound quality by making a parallel connection between the centre, subwoofer, and surround channel A/D-D/A converters and the front channel A/D-D/A converters during 2-channel mode.
In comparison to a single parallel connection in particular, the performance (signal-to-noise ratio (S/N) and other factors) is improved by a factor of $\sqrt{n}$ where n denotes the number of parallel connections.

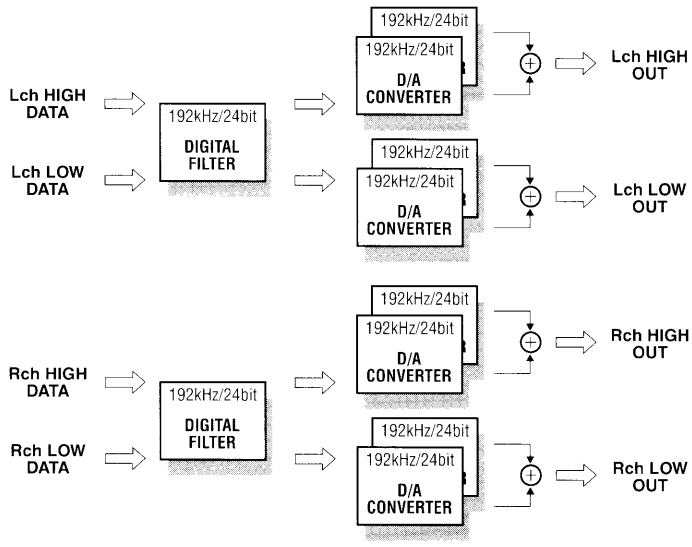
A/D converter.....3 parallel connections



D/A converter.....Normal mode: 4 parallel connections

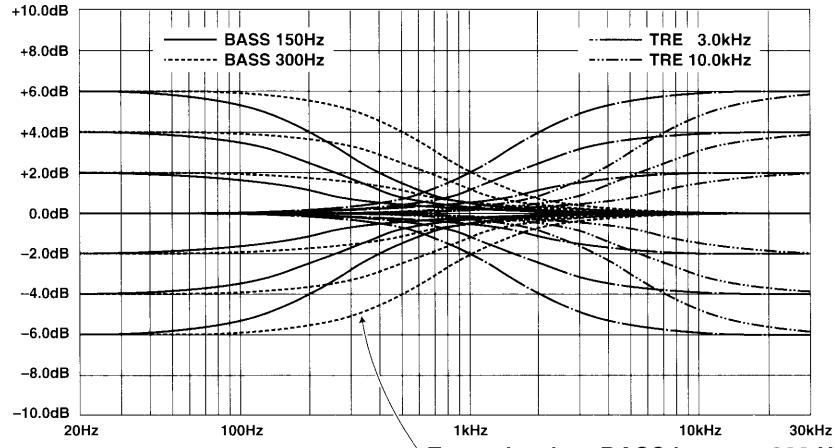


D/A converter.....Network mode: 2 parallel connections



■ Tone Control Characteristics Diagram

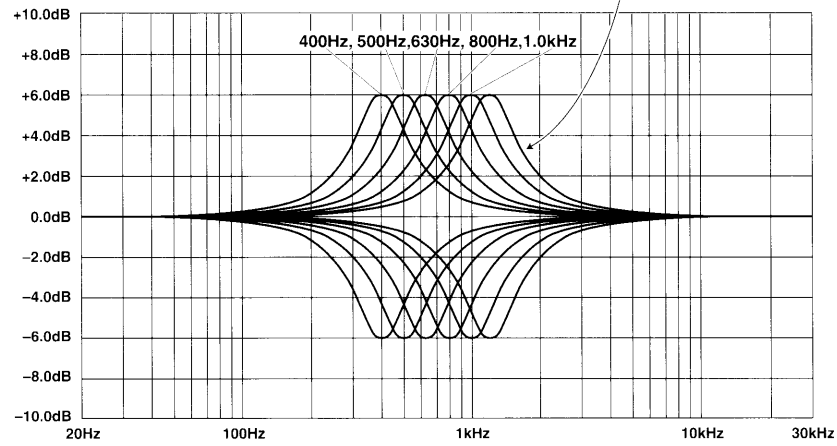
BASS (Bass), TRE (Treble) ..... Frequency Characteristics



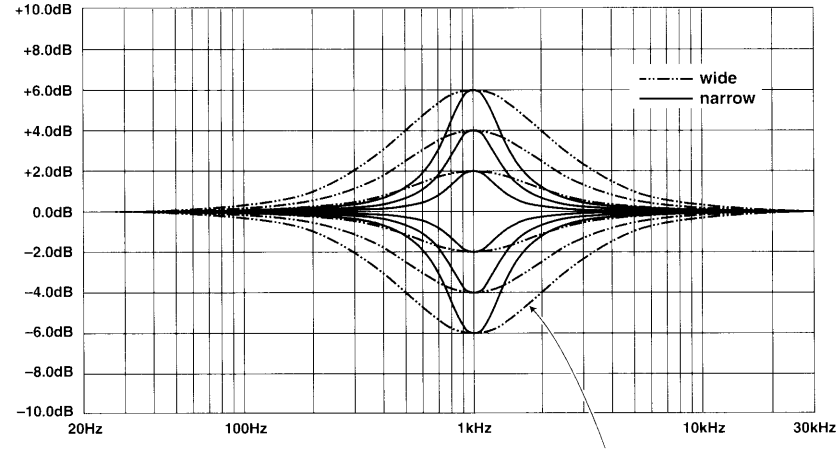
Example when BASS is set to 300 Hz and –6.0 dB

MID (Midrange) ..... Frequency Characteristics

Example when MID is set to 1.2 kHz and +6.0 dB (narrow)



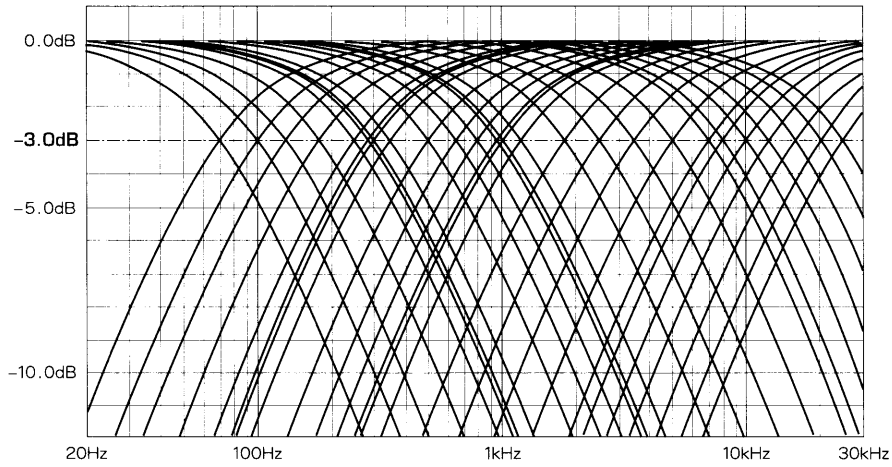
MID (Midrange) ..... Range Width Characteristics



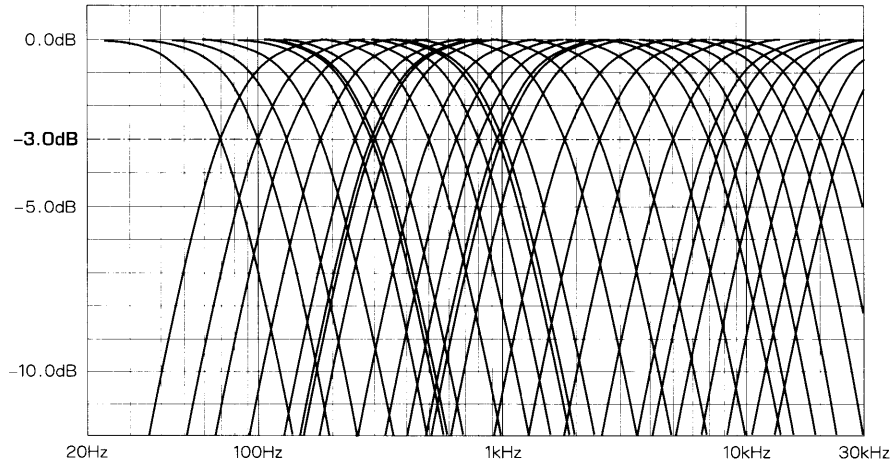
Example when MID is set to 1.0 kHz and –6.0 dB (wide)

■ Slope Characteristics Diagram

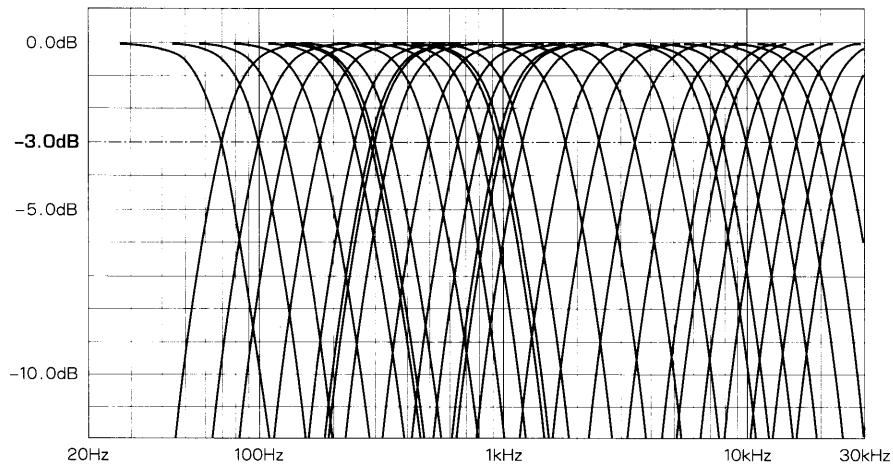
IIR Slope Characteristics Diagram (–6 dB/oct)



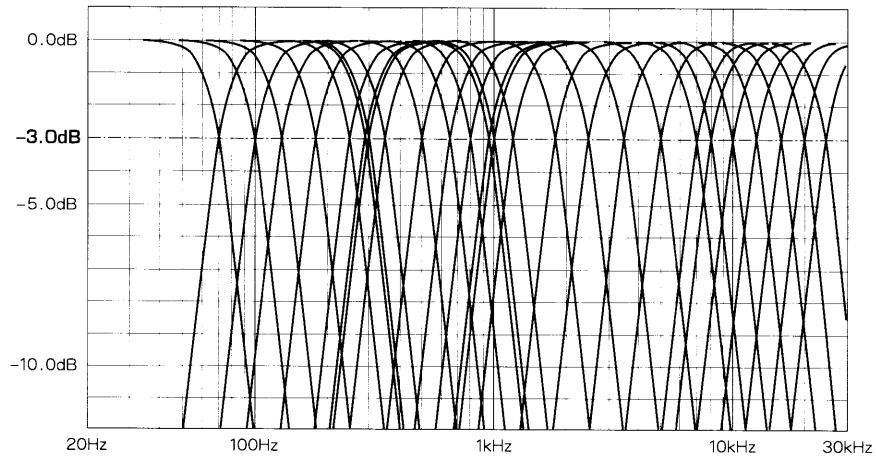
IIR Slope Characteristics Diagram (–12 dB/oct)



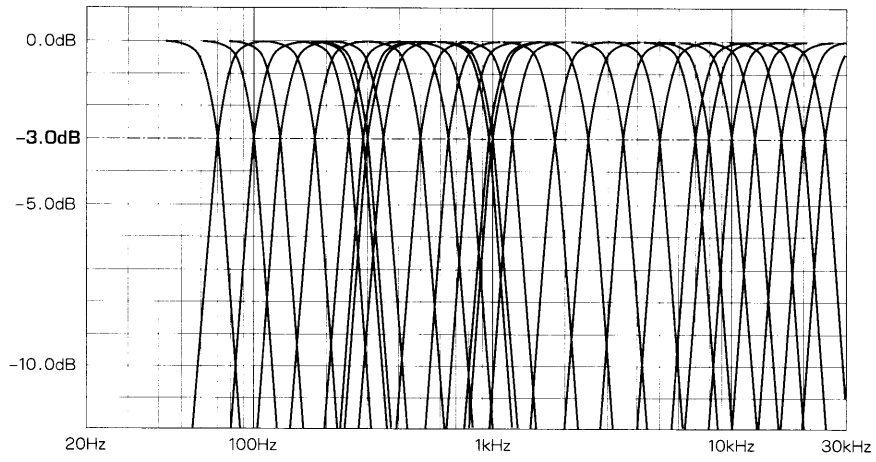
IIR Slope Characteristics Diagram (–18 dB/oct)



IIR Slope Characteristics Diagram (–24 dB/oct)



IIR Slope Characteristics Diagram (–36 dB/oct)



IIR Slope Characteristics Diagram (–96 dB/oct)

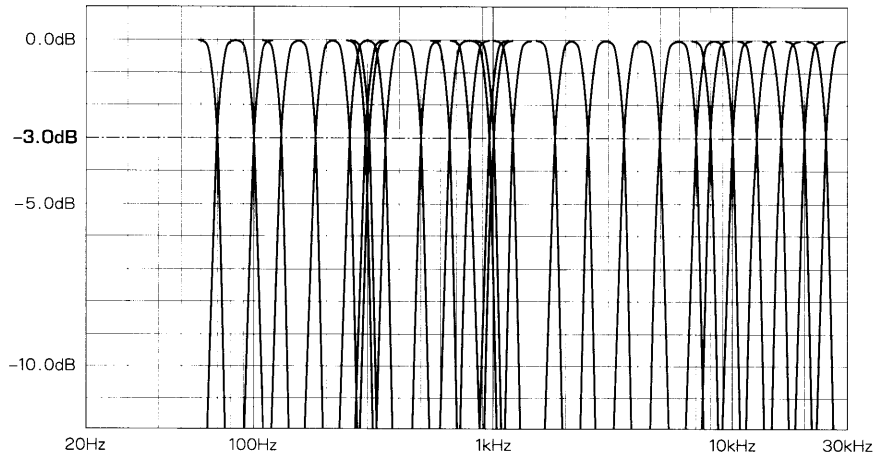


Table of Default Settings

When resetting all settings (➡ p.63), the functions are reset to the default settings shown below.

NETWORK SET UP		
IIR		
> fc		
Low	2.5 kHz	
High	2.5 kHz	
> SLOPE		
Low	–18 dB/oct	
High	–18 dB/oct	
> LEVEL		
Low	0.0 dB	
High	–20.0 dB	
> TIME ALIGNMENT	0 ms	
> PHASE	0 °	
FIR		
> fc	1.0 kHz	
> LEVEL		
Low	0.0 dB	
High	–20.0 dB	
> TIME ALIGNMENT	0 ms	
> PHASE	0 °	
SYSTEM SET UP		
> SP SIZE		
>> FRONT	LARGE	
>> CENTER	LARGE	
>> SURROUND	LARGE	
>> SUB WOOFER	ON	
> SP DISTANCE		<For American model>
>> FRONT	3.0 m	10.0feet
>> CENTER	3.0 m	10.0feet
>> SURROUND R	3.0 m	10.0feet
>> SURROUND L	3.0 m	10.0feet
>> SUB WOOFER	3.0 m	10.0feet
> CHANNEL LEVEL		
FRONT	***	
CENTER	0 dB	
SURROUND R	0 dB	
SURROUND L	0 dB	
SUB WOOFER	0 dB	
> CROSS OVER	100 Hz	
> LOW CUT FILTER	OFF	
> ANALOG 3	LINE	
> DIGITAL FILTER	STANDARD	
> DISPLAY MODE		
Top row	Input selector	
Bottom row	Sampling frequency/ Volume setting	
> LFE ATT	0 dB	
> D-RANGE CONT.	OFF	

INPUT SELECTOR	DVD-A
└ DVD INPUT 2ch/multi ch	/multi
REC SELECTOR (DIGITAL)	SOURCE
└ fs 96k/48k	48 kHz
MUTING	OFF
BALANCE	Centre
INPUT GAIN	0 dB
SOUND MEMORY	
A1 to B8	Same settings as TONE
C1 to C8	Same as the corresponding settings in SYSTEM SET UP
TONE	
└ EACH/ALL	EACH
F : BASS (Hz)	150 Hz
F : BASS (dB)	0 dB
F : MID (Hz)	1 kHz
F : MID (dB)	0 dB
F : MID	narrow
F : TRE (Hz)	10 kHz
F : TRE (dB)	0 dB
C : BASS (Hz)	150 Hz
C : BASS (dB)	0 dB
C : MID (Hz)	1 kHz
C : MID (dB)	0 dB
C : MID	narrow
C : TRE (Hz)	10 kHz
C : TRE (dB)	0 dB
S : BASS (Hz)	150 Hz
S : BASS (dB)	0 dB
S : MID (Hz)	1 kHz
S : MID (dB)	0 dB
S : MID	narrow
S : TRE (Hz)	10 kHz
S : TRE (dB)	0 dB
DIGITAL NR	OFF
MIDNIGHT	OFF
Hi-bit	OFF
DIRECT	ON
DIMMER	Bright (100%)
DECODE (□□/DTS)	OFF
REMOTE ON/OFF	ON
CHARACTER	Same as the settings on Fig. 1 on page 66

Specifications

■Digital preamplifier

Number of quantizing bits
- Digital input: 16 – 24 bits/linear
- Analogue input: 24 bits/linear

Sampling frequency
- Digital input (automatic detection): 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz (176.4 kHz and 192 kHz are possible only when using PDIF connections.)
- Analogue input: 96 kHz

Frequency characteristics (Direct function is on)
- Digital input: 5 Hz – 44 kHz (Sampling frequency: 96 kHz)
- Analogue input
  - LINE: 5 Hz – 44 kHz
  - PHONO (MM): 20 Hz – 20 kHz ±0.3 dB

S/N ratio (Normal, 2-channel mode)
- Digital input: 118 dB min. (acoustic correction)
- Analogue input
  - LINE: 115 dB min. (acoustic correction)
  - PHONO(MM): 84 dB min. (IHF A network, short circuit) (when 6 mV is input)

Dynamic range (Direct function is on, Normal, 2-channel mode)
- Digital input: 110 dB min.
- Analogue input: 108 dB min. (except for PHONO)

Total harmonic distortion (Direct function is on, Normal, 2-channel mode)
- Digital input: 0.0010% max.
- Analogue input: 0.0012% max. (except for PHONO)

Channel separation (Normal and 2-channel mode)
- Digital input: 115 dB min. (20 kHz)

Tone control: ±6 dB 0.5 dB-steps
- BASS: 150 Hz, 300 Hz
- MID: 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1.0 kHz, 1.2 kHz
- TREBLE: 3 kHz, 10 kHz

Analogue maximum allowable input (Input gain: –6 dB)
- LINE: 5 V
- PHONO (MM): 45 mV (1 kHz)

■Input/output jacks

Analogue input jack: RCA 4-line (Input impedance: 50 kΩ) (one of these lines supports multichannel input)

Analogue output jacks
- Preout [Output impedance: 100 Ω (max.)]
  - Front: 2 RCA lines
  - Surround: 1 RCA line
  - Centre: 2 RCA lines
  - Subwoofer: 2 RCA lines
- REC out: 2 RCA lines (Output impedance: 1 kΩ)

Digital input jacks
- Coaxial 3-line: 0.5 Vp-p (Input impedance: 75 Ω)
- Optical 3-line

Digital output jacks
- Coaxial 1-line: 0.5 Vp-p (Output impedance: 75 Ω)
- Optical 1-line

- The signal format during PDIF mode is Pioneer's own custom format, and it does not conform to the IEC60958 standards.

■Power supply/miscellaneous

Supply voltage	AC 230 V, 50/60Hz (For European model) AC 120V, 60Hz (For American model)
Power consumption	52 W
Dimensions	440 (W) × 150 (H) × 410 (D) mm $17\,^{5}/_{16}$ (W) × $5\,^{7}/_{8}$ (H) × $16\,^{1}/_{8}$ (D) in.
Weight (without package)	22.2 kg 48.9 lbs

■Accessories

Operating instructions	1
Warranty	1
Remote control	1
AA batteries (R6P)	2
PDIF connection cable (stereo mini-plug)	1

*The audio characteristics are values measured at a sampling frequency of 96 kHz and 24 bits.

- The above specifications and product appearance are subject to change without notice for incorporating product improvements.

Troubleshooting

Check the troubleshooting guide below if you suspect that the amplifier is faulty. In some cases, you may have made a simple mistake or overlooked something obvious. Also, the cause of the fault could have nothing to do with the amplifier. Check the other devices and electrical tools that you are using together with the amplifier. If the amplifier still does not work after checking the suggested items here, contact your nearest repair centre. (See page 90.)

Symptom	Probable cause	Remedy
The power does not turn on.	● The amplifier is not plugged into the outlet.	● Plug the amplifier into the outlet.
No sound is emitted.	● The input selector does not match the playback device.	● Match the input selector to the playback device.
	● The Output mode is set to OFF.	● Set to the mode to be used (NORM, IIR, or FIR) (➡ p.25)
(The Output mode display is flashing.)	● The Output mode was changed while the power was on.	● Turn off the power, check the OUTPUT MODE selector, and then turn on the power.
	● The master volume was automatically set to the minimum when the Output mode was changed (➡p.25)	● Raise the master volume.
("MUTING" is displayed.)	● The amplifier is in Mute status.	● Press the MUTING button on the remote control.
	● The connected power amplifier is turned off.	● Turn on the power amplifier.
	● The volume for the connected power amplifier is set to the minimum.	● Raise the volume of the power amplifier.
	● A connection cable has been removed from the jack, or the connections are not correct.	● Check the connections. (➡ pp.16-21)
	● The jack or connection cable pin plug is dirty.	● Wipe clean.
No sound is emitted during digital input ("UNLOCK" is displayed)	● The digital output is set to OFF at the DVD player.	● Change the DVD player settings.
("NON-AUDIO" is displayed)	● CD-ROM or other data signals are being input.	● These data signals are not supported.
"PDIF" cannot be selected by the INPUT SELECTOR or the REC SELECTOR	● The amplifier is not in PDIF mode.	● Set to PDIF mode. (➡ p.47)
No sound is emitted during the PDIF connection ("NON-AUDIO" is displayed)	● A CD-ROM or other data disc is being played back.	● The amplifier does not support data discs.
("UNLOCK" is displayed)	● A DVD that does not allow digital output is being played back.	● Set the INPUT SELECTOR to analogue (DVD) for playback.
("UNLOCK" is displayed)	● The digital output is set to OFF at the DVD player.	● Change the DVD player settings.
	● The amplifier is not set to PDIF mode.	● Set to PDIF mode. (➡ p.47)

Symptom	Probable cause	Remedy
Sound is not emitted from one of the front channels.	● The right and left balance is set to one side. ● The connections have not been made for one side.	● Adjust the right and left balance. (➡ p.51) ● Make the connections properly.
No sound is emitted from the surround, centre, or subwoofer channels.	● The speakers are set to "NONE" or "OFF". ● The channel level for the surround, centre, and subwoofers is low. ● The DVD-A input is set to "2 ch". ● The playback mode for the DVD player is set to two channels. ● The power amplifier that the surround, centre, and subwoofers are connected to is turned off. ● The volume for the power amplifier that the surround, centre, and subwoofer are connected to is set to the minimum. ● The connections were not made correctly.	● Make the correct speaker settings. (➡ p.36) ● Raise the channel level. (➡ p.42) ● Set to "multi". (➡ p.46) ● Change the DVD player settings. ● Turn on the power amplifier. ● Raise the volume of the power amplifier. ● Make the connections correctly. (➡ pp.17-18)
No sound is emitted from the subwoofer channel.	● The LFE attenuator is set to "MUTE".	● Set to "0 dB" or "-10 dB". (➡ p.45)
The volume for the analogue player is too small.	● The ANALOG 3 input function is set to "LINE".	● Set to "PHONO". (➡ p.45)
The HIGH or LOW sound in the IIR network connection is low.	● The crossover frequency is not set correctly. ● The slope characteristics are not set correctly. ● The level was not adjusted correctly. ● The tone control is not set correctly.	● Make the correct setting. (➡ p.28) ● Make the correct setting. (➡ p.29) ● Make the correct adjustments. (➡ p.29) ● Change the Tone Control settings. (➡ p.58)
The HIGH or LOW sound in the FIR network connection is low.	● The level was not adjusted correctly.	● Make the correct adjustments. (➡ p.33)
The sound is distorted ("OVER" indicator is turned on)	● The volume is set too high. ● The level at the tone control is set too high. ● The input signal is too large.	● Lower the master volume. ● Lower the input gain. (➡ p.52) ● Lower the tone control level. (➡ p.58) ● Lower the input gain. (➡ p.52) ● Lower the input gain. (➡ p.52)
The ANALOG 3 input sound is distorted.	● The ANALOG 3 input function is set to "PHONO".	● Set to "LINE". (➡ p.45)

Symptom	Probable cause	Remedy
Only high-range sounds or low-range sounds are output from the speakers.	● The output mode is set to "FIR" or "IIR".	● Make the correct setting according to the connection. (➡ p.25)
Oscillation occurs. (An unusual sound is made.)	● The amplifier and connected devices are connected in a loop.	● Change the connections or settings. (➡ p.48)
Analogue recording cannot be performed.	● You are trying to record at a device connected to the ANALOG 1 REC OUT jack when the INPUT SELECTOR is set to "ANALOG 1".	● Nothing is output from the ANALOG 1 REC OUT jack. (➡ p.49)
	● You are trying to record at a device connected to the ANALOG 2 REC OUT jack when the INPUT SELECTOR is set to "ANALOG 2".	● Nothing is output from the ANALOG 2 REC OUT jack. (➡ p.49)
	● You are trying to record the PHONO input signal.	● Nothing is output from the analogue REC OUT jack when ANALOG 3 is set to "PHONO".
	● You are trying to record the digital input signal.	● Nothing is output from the analogue REC OUT jack when digital input is selected by the INPUT SELECTOR.
	● The connections are not correct.	● Make the correct connections. (➡ p.17)
Digital recording cannot be performed.	● The digital REC selector is set to "OFF" or to a device different from the one you are trying to record.	● Set to "SOURCE" or the device that you are trying to record. (➡ p.48)
	● The input signals are copyright protected.	● Nothing is output from the digital output jacks.
	● The input signal sampling frequency is not supported by the recording device (sampling frequency: 88.2 kHz, 96 kHz)	● Check the recording device.
(Analogue input) →	● The signals are output at a sampling frequency of 96 kHz. (This is not supported by the recording device.)	● Set to "48 kHz". (➡ p.48)
(Analogue input) →	● The digital REC selector is set to a setting other than "SOURCE".	● Set to "SOURCE". (➡ p.48)
(DVD-A input) →	● The input is set to "multi".	● Set to "2 ch". (➡ p.46)
(PDIF input) →	● Dolby Digital or DTS signals are being input.	● Nothing is output from the digital output jack.
(PDIF input) →	● Signals with a sampling frequency of 176.4 kHz or 192 kHz are being input.	● Nothing is output from the digital output jack.
(Multichannel input) →	● Multichannel signals are being input.	● Nothing is output from the digital output jack.
	● CD-ROM or other data signals are being input.	● Data signals are not supported by this amplifier.
	● The connections are not correct.	● Make the correct connections. (➡ p.16)
The function cannot be set, or the function can be set, but it does not operate.	● Operation of functions is restricted in certain combinations.	● Check "Table of Function Combinations". (➡ p.68)

Symptom	Probable cause	Remedy
The crossover frequency (multi-channel) cannot be set.	● The speaker settings are set to "LARGE" for the front, centre, and surround speakers.	● Change the settings. (➡ p.36)
The remote control does not work.	● The remote control is off. ● The remote control's batteries have run out of power. ● The remote control is being used too far from the sensor or at a severe angle. ● There is an object blocking the signal's path to the sensor. ● A fluorescent light or other strong lighting is shining on the remote control signal sensor. ● A cable is connected to the amplifier's CONTROL IN jack.	● Press the REMOTE ON/OFF button on the remote control. (➡ p.12 ⑬) ● Replace the batteries. (➡ p.9) ● Use the remote control within 7 m and within 30° to the side from the sensor. (➡ p.13) ● Remove the object blocking the path, or move the operating location. ● Change the environment so that light does not directly shine on the remote control signal sensor. ● Operate the remote control by pointing it only toward the device with the plug connected to the control output jack. ● Connect the cable to the correct jack. (➡ p.20)
The display is too dark or too bright.	● The display brightness was not adjusted correctly.	● Adjust the display brightness (DIMMER). (➡ p.63)
The display turns on during operation and then immediately turns off.	● The display is off.	● Adjust the display brightness (DIMMER). (➡ p.63)
The volume setting is not displayed. (The displayed options are different.)	● The display format setting is different.	● Select the display format for the display. (➡ p.45)
No sound is output when playing DTS-compatible software, or noise is output.	● The INPUT SELECTOR is set to ANALOG input. ● The DVD player that you are using is not DTS compatible, or the DVD player settings are not correct. ● The digital output level setting is set too low for CD players and other devices with a digital output level adjustment function. (The DTS signal cannot be read correctly.)	● Connect the device with the correct digital connection, and then set the INPUT SELECTOR to "DIGITAL". (➡ p.46) ● Read the operating instructions for the DVD player. ● Raise the digital output level of the device.
Noise is output while searching with a DTS-compatible CD player.	● The digital data contained in the CD is read during searching.	● This is not a malfunction. During searching, lower the volume of the amplifier to reduce the sound from the speakers.

If the amplifier does not operate properly due to static electricity or other external causes:

● In some cases, the amplifier works properly after unplugging the power cable and then plugging it in again.

Notes for Sound Memory Settings

Use this page for keeping track of your sound memory settings.

		ALL		FRONT		CENTER		SURROUND	
		Frequency	Level	Frequency	Level	Frequency	Level	Frequency	Level
A1	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A2	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A3	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A4	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A5	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A6	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A7	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
A8	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B1	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B2	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B3	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B4	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B5	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB

		ALL		FRONT		CENTER		SURROUND	
		Frequency	Level	Frequency	Level	Frequency	Level	Frequency	Level
B6	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B7	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB
B8	BASS	Hz	dB	Hz	dB	Hz	dB	Hz	dB
	MID	Hz	dB	Hz	dB	Hz	dB	Hz	dB
		wide · narrow		wide · narrow		wide · narrow		wide · narrow	
	TRE	Hz	dB	Hz	dB	Hz	dB	Hz	dB

		FRONT		CENTER	SURROUND		SUB WOOFER
		L ch	R ch		L ch	R ch	
C1	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C2	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C3	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C4	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C5	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C6	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C7	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		
C8	Speaker settings	L · S		L · S · N	L · S · N		ON · PLUS · OFF
	Distance to the speakers	m		m	m	m	m
	Channel level	dB	dB	dB	dB	dB	dB
	Crossover frequency	70Hz · 100Hz · 150Hz · 200Hz · PASS		DRC	MID · MAX · OFF		
	Low-cut filter	ON · OFF		LFE attenuator	0dB · −10dB · MUTE		

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Dear Customer:

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion-and, most importantly, without affecting your sensitive hearing.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

To establish a safe level:

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:

- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

We Want You Listening For A Lifetime

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

Decibel Level	Example
30	Quiet library, soft whispers
40	Living room, refrigerator, bedroom away from traffic
50	Light traffic, normal conversation, quiet office
60	Air conditioner at 20 feet, sewing machine
70	Vacuum cleaner, hair dryer, noisy restaurant
80	Average city traffic, garbage disposals, alarm clock at two feet.

THE FOLLOWING NOISES CAN BE DANGEROUS UNDER CONSTANT EXPOSURE

90	Subway, motorcycle, truck traffic, lawn mower
100	Garbage truck, chain saw, pneumatic drill
120	Rock band concert in front of speakers, thunderclap
140	Gunshot blast, jet plane
180	Rocket launching pad

Information courtesy of the Deafness Research Foundation.

Power cord CAUTION!

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord.

Never make a knot in the cord or tie it with other cords.

The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord once in a while. When you find it damaged, ask your nearest PIONEER authorized service centre or your dealer for a replacement.

Maintenance of External Surfaces

- Use polishing cloth or dry cloth to wipe off dust and dirt.
- When the surfaces are dirty, wipe with a soft cloth dipped in some neutral cleanser diluted five or six times with water, and wrung out well, and then wipe again with a dry cloth. Do not use furniture wax or cleaners.
- Never use thinners, benzine, insecticide sprays or other chemicals on near this unit, since these will corrode the surfaces.

AFTER-SALES SERVICE FOR PIONEER PRODUCTS

Please contact the dealer or distributor from where you purchased the product for its after-sales service (including warranty conditions) or any other information. In case the necessary information is not available, please contact the Pioneer's subsidiaries (regional service headquarters) listed below:

PLEASE DO NOT SHIP YOUR PRODUCT TO THE COMPANIES at the addresses listed below for repair without advance contact, for these companies are not repair locations.

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4-1, MEGURO 1-CHOME, MEGURO-KU, TOKYO 153-8654 JAPAN

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PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS [USA] INC. P.O. BOX 1540, Long Beach, California 90801-1540, U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway, Markham, Ontario L3R OP2, Canada
PIONEER [EUROPE] NV Haven 1087, Keetberglaan 1, B-9120 Melsele, Belgium TEL: 03/570.05.11
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia, TEL: [03] 9586-6300
PIONEER ELECTRONICS DE MEXICO S.A. DE C.V. San Lorenzo Num 1009 3er piso Desp. 302 Col. Del. Valle, Mexico D.F. C.P. 03100 TEL: 5-688-52-90

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